

The Foundation Course of Victor Pasmore
and Richard Hamilton 1954 - 1966

Richard Robin Yeomans

A thesis presented for
the degree of Ph.D in the University of London
Institute of Education

1987



Abstract

This dissertation seeks to establish the context, and trace the development of the foundation course established by Victor Pasmore and Richard Hamilton at the University of Newcastle-on-Tyne between 1954 and 1966. The course at Newcastle was representative of certain aspects of the basic design movement which marked a radical change in art educational thinking in the post-war period. To some extent, basic design teaching represented a dissemination of Bauhaus thinking in post-war Britain, and Part 1 examines the pedagogy of Kandinsky, Klee and Itten, thus establishing a framework of ideas against which the subsequent pedagogy of Victor Pasmore and Richard Hamilton can be set.

Part 2 begins with the impact of the Bauhaus on Britain during the thirties and the immediate post-war period when industrial reconstruction led to increased demand for design training, and basic courses, loosely formed on the Bauhaus model, were introduced by William Johnstone at the Central School of Arts and Crafts. From the Central School emerge Pasmore and Hamilton, two artists who represented polarities in their respective commitments to abstraction and figuration. Because the foundation course mirrors the issues in post-war abstraction and figuration, Part 2 seeks to establish the context of the work of Pasmore and Hamilton by examining the theoretical basis of Pasmore's abstraction, and the sources of Hamilton's ideas and imagery located in the natural and man-made world, and in his expression of contemporary society.

Part 3 examines the evolution and philosophy of the foundation course with reference to other developments in basic design at Leeds College of Art and the Newcastle/Leeds collaboration on the Scarborough Summer Schools. The subsequent foundation course programme is analysed section by section, relating its various aspects to the interests, influences, and creative preoccupations of Pasmore and Hamilton. The conclusion presents a critical evaluation of the course and assesses its influence on, and relevance to current issues in art education.

Volume I

Contents

2	Abstract
5	Acknowledgements
6	Sources and Bibliographical Note
8	Preface
14	Part 1 The Origins of Basic Design Thought: Kandinsky, Klee and Itten
69	Part 2 The Influence of the Bauhaus on Basic Design
99	Victor Pasmore: The Natural World and Abstraction
139	Richard Hamilton: The Natural and Man-Made World
172	Part 3 The Development and Philosophy of the Foundation Course
206	Course Content
270	Conclusion
302	Notes and References
321	Bibliography
326	Appendices

Acknowledgements

My initial interest in this field of research was stimulated by Dr David Thistlewood's exhibition 'A Continuing Process' held at the ICA in 1981, and I am particularly grateful to David Thistlewood for his subsequent help and advice and assistance in giving me access to key portfolios in Liverpool. Thanks are also due to David Phillips of the Coventry Lanchester Polytechnic who put me into contact with my first primary sources, the abandoned research material of Peter Sinclare, who had initiated some work on basic design in 1974. Much of my material has come from interviewing the artists and students concerned and I am particularly indebted to Victor Pasmore and Richard Hamilton who have given much of their time in the form of interviews and correspondence. Of the other artists and teachers I have interviewed, I am particularly grateful to Terry Frost, William Turnbull, Ian Stephenson, Rita Donagh, Matt Rugg, Geoffrey Dudley and William Varley, whose insights and personal recollections have been invaluable in bringing so much of the research material to life. I am also grateful to William Varley for his hospitality, support and assistance in giving me access to the Newcastle portfolios. Thanks are also due to Martin Eldridge for the loan of his first year portfolio. I would also wish to thank Michael Steveni of the Birmingham Polytechnic for his advice throughout the early stages of this research. Finally, I would like to thank my supervisor Mr Stanislaw Frenkiel, Emeritus Reader in Art Education, London University Institute of Education, whose linguistic acumen and eye for detail have proved invaluable in tutorial guidance, and whose cultural breadth and humour have contributed towards making this research endeavour such an agreeable experience.

Sources and Bibliographical Note

The present study grew out of an MA dissertation which I wrote and submitted to Birmingham Polytechnic in 1984, entitled, 'The Foundation Course Established by Victor Pasmore and Richard Hamilton 1954 - 1966'. The only book on the basic design movement is David Thistlewood's 'A Continuing Process' ICA (1981) which consists of a 44 page essay on the work of Victor Pasmore, Richard Hamilton and Tom Hudson.

Maurice de Saumarez did write a book entitled 'Basic Design', Studio Vista (1964), but this is essentially a practical guide for teachers and is not an historical account of the movement. Of the early period when basic design emerges at the Central School of Arts and Crafts, William Johnstone's autobiography 'Points in Time', Barrie and Jenkins (1980) has been most useful, but statements by the artists involved in the post-war basic design initiatives are scant, being mainly catalogue statements. Of all the participants in the basic design movement, Richard Hamilton has been the most forthcoming and articulate in expressing his views on teaching. He has made his pedagogy clear in a number of articles and interviews, most notably, 'About art teaching, basically', Motif 8 (Winter 1961), 'First Year Studies at Newcastle', Times Educational Supplement (1960), and 'What kind of Art Education?', Studio International (Sept 1966). All the major participants in the basic design movement, Victor Pasmore, Richard Hamilton, Harry Thubron, Tom Hudson, Terry Frost and Alan Davie made short contributions to the catalogue of the exhibition 'The Developing Process', Newcastle (1959). With the exception of his contribution to 'The Developing Process' and some statements regarding the Scarborough Summer Schools, Victor Pasmore has said little about his pedagogy and the only retrospective statement he has made has been in correspondence with the author in connection

with this research and his letter is included as Appendix I at the end of this study. As much published information is scarce, and because the retrospective nature of that material is questionable, much of my research material has come from interviews with those concerned. Peter Sinclare began researching into this area for the Coventry Lanchester Polytechnic in 1974, interviewing Richard Hamilton, Harry Thubron, John Wood, Norbert Lynton, John Kinnaird and others, before abandoning the research due to ill health. Use has been made of the Sinclare tapes, but on my own account I have interviewed Victor Pasmore, Richard Hamilton, William Turnbull, Terry Frost, Ian Stephenson, Rita Donagh, Matt Rugg, Geoffrey Dudley and William Varley.

As far as visual sources are concerned, much work has survived in archives in Newcastle and Liverpool. David Thistlewood, of the School of Architecture, University of Liverpool, gave me access to some portfolios representing the earlier period, which had been given by Victor Pasmore (now in the Bretton Hall Archive). William Varley of the Department of Fine Arts at the University of Newcastle-on-Tyne gave me access to some portfolios, mainly dating from the early sixties. Mr Martin Eldridge was also able to loan me his surviving first year portfolio, and Richard Hamilton has been invaluable in his loan of black and white photographs and colour slides. Other visual material has come from my own photographic collection, from the Tate Gallery, and from the books under review in the first chapter.

Preface

The object of this study is to outline the history, and trace the development of ideas which produced the innovations in art education by Victor Pasmore and Richard Hamilton at the University of Newcastle-upon-Tyne¹, between 1954 and 1966. These innovations represented a synthesis of European modernism which was largely unknown or ignored in this country, and the dissemination of these ideas was to have a wide influence on post-war British art education. The pedagogic method which evolved at Newcastle represented an expression of what is generally described as the basic design movement and what was essayed by Victor Pasmore and Richard Hamilton at Newcastle, by Harry Thubron and Tom Hudson at Leeds and Leicester, was to provide a loose model for the evolving foundation courses which were instituted following the recommendations of the Coldstream Report. In spite of its widespread influence, there is little coherent documentation of the period, either of a visual or written nature, and little attention has been given to the wider creative or intellectual climate which fostered these ideas. My purpose is to illuminate one corner of a complex movement, by establishing the context, examining the philosophy, and analysing the evidence of a particular course which was instrumental in bringing about these changes in art education.

I was prompted to undertake this study following the controversy which surrounded the exhibition on basic design, entitled 'A Continuing Process' organised by David Thistlewood at the Institute of Contempo-

rary Arts in 1981. This exhibition aroused so much comment and induced so many passions and misunderstandings that it seemed evident that a history of the movement was overdue. Above all, much critical response to 'A Continuing Process' was based on the false assumption that it was a movement with a unity of purpose which could be analysed in simple terms.² The issues which the exhibition raised are living issues and the principles need to be restated and re-examined, because not only were they misunderstood by the outsider, but there were many contentious questions and differences of opinion among the main protagonists. These tensions and contradictions were indicative of the essential dynamics of the movement.

It is probably misleading to describe basic design teaching as a movement in art education, because 'movement' suggests common objectives, but like most art movements, the more one closely analyses it, the more one realises that the threads which bind the participants together are very loose indeed. To quote Victor Pasmore:

'It is necessary to understand that there was no single unified idea, system or programme for the Foundation Course developed by Richard Hamilton and myself at Newcastle, and Harry Thubron and Tom Hudson at Leeds. In fact the whole affair was an entirely empirical and experimental procedure which somehow managed to muddle together and combine collective exhibitions which gave the appearance of unity - rather like when a mass of assorted junk cars are dumped in a heap they form the unity of a pyramid . . . in my view the Newcastle/Leeds 'Tower of Babel' was its great strength and vitality.'³

Even the term 'basic design' is one which Victor Pasmore rejects, preferring to describe the work as a 'developing process', emphasizing its dynamic nature and rejecting the fixed and static implications of 'basic design'. The term 'basic design' was never used at Newcastle and the course was generally referred to as the foundation course or

basic course, and occasionally reference is made to basic form studies. Following the publication of Maurice de Saumarez's book 'Basic Design', the term has gained acceptancy, like 'Cubism' or 'Impressionism', and for this reason I will use it with occasional reservations. It is also questionable that the foundation course at Newcastle had anything to do with design, because it functioned primarily as a grounding for painters and sculptors, unlike the foundation course at Leeds which provided a base for all the branches of art and design, including architecture. The intentions and purposes behind the Newcastle and Leeds initiatives were radically different.

If one questions the validity of basic design as a blanket term for a movement in art education, being mindful of the enormous regional differences, the next step is to analyse the diverse expressions of basic design teaching within the various institutions, and it soon becomes apparant that it makes more sense to speak of Tom Hudson's basic design course, or Victor Pasmore's basic design course, rather than the Leeds school or the Newcastle school. In the case of Newcastle, the personalities of Victor Pasmore and Richard Hamilton, their creative preoccupations and their teaching philosophy were, in many ways, diametrically opposed. Victor Pasmore was a charismatic teacher who taught by example, force of personality, and sheer conviction, while Hamilton's approach was analytical, distanced and self-effacing. They complemented each other and their very differences provided the chemistry which made innovation possible. What they had in common was a belief that the visual arts contained formal elements which were amenable to objective analysis. They also, in their respective ways, encouraged the student to discover the inner structure

and character of those elements, how to manipulate them and come to an understanding of the manifold procedures and processes which govern artistic production.

Because of the complex nature of the basic design initiatives, I am confining this study to the work of Victor Pasmore and Richard Hamilton at Newcastle. The contributions of Harry Thubron, Tom Hudson, William Turnbull and others are of equal importance, and possibly more representative of the movement as a whole, but it is outside the scope of a study of this length to give equal attention to all the participants, and the Leeds contribution has been the subject of research elsewhere.⁴ Also, I have personal experience of Richard Hamilton's foundation course as an undergraduate in 1963/64, and experience and personal recollection are invaluable aids in gaining a multidimensional assessment of events which cannot be adequately represented merely on the basis of published statements and photographic evidence. Much of what was published was produced after the event and represents a rationalisation of spontaneous acts, and one becomes conscious of the gap between the written statement and the spirit in which ideas were communicated and work generated. Catalogue statements which deal with aims, objectives and broad principles, frequently fail to indicate the inspirational and charismatic nature of those teachers involved. For this reason, much of the research relies on interviews and correspondence with the artists and students concerned, rather than on statements and manifestos.

Likewise, in the literature of art education, there is frequently a wide gulf, and lack of correspondence between what is stated in principle and what is actually produced. Certain concepts can be

appropriately stated, but one soon reaches a threshold where ideas have to be shown. For this reason, a substantial part of this study will be concerned with visual analysis of the work and how certain concepts are visually realised. There are special problems in this respect, because whereas the art historian is usually involved with research into works which have been left for posterity, the essential nature of the work which I shall be examining will be its ephemerality. The primacy of the experimental approach cultivated at Newcastle encouraged a 'throw away' regard for much of the work which was produced. Preciousness was discouraged and emphasis placed on process rather than product, and for this reason what has survived represents a very patchy record of what took place. There is also the paradox that the more substantial works produced in the forms of sculpture or painting, unless photographically recorded, have not survived, because surviving archival material has been that which excludes bulky work. Nevertheless, some portfolios have survived and Richard Hamilton has a photographic record of much of the work which is reasonably comprehensive.

By art historical standards the period I am researching is very recent, but the ephemeral and impermanent nature of the material, be it works produced, anecdotes, old timetables, catalogues, manifestos, and fading memories - all the fragile evidence which can recreate events, suggests the necessity for some permanent record as a matter of urgency before it evaporates into the hot air of controversy. Chronicling ideas and events may be some value as an end in itself, but I hope to demonstrate that the issues raised regarding the content of art education, and what is an appropriate foundation for a course of study, are of enduring interest and relevant to all art educators and planners. Each

generation determines the content of art education according to its own needs and creative preoccupations, and I hope to demonstrate how the Newcastle experiment reflected the concerns of a number of post-war artists who were attempting to evolve a pedagogical method which was relevant to the new developments in abstraction and figuration. What needs to be determined, is how enduring the content of that pedagogical method was, and how much can be consigned to the needs of the fifties and sixties.

PART 1

The Origins of Basic Design Thought: Kandinsky, Klee and Itten

In spite of the complexity and manifold expression of the basic design movement, there are certain common issues and assumptions which have their roots in the modernist thought of the early twentieth-century, and it is not possible to understand the post-war innovations in British art education without a preliminary examination of the pedagogy of the Bauhaus. The basic design movement in Britain would not have been possible were it not for the Bauhaus, and the work of Kandinsky, Klee and Itten in particular. To what extent the Bauhaus influenced the basic design movement is the subject of the next chapter, but most of the main participants were to greater and lesser degrees aware of Bauhaus precedence, and it is necessary to examine those writings by the Bauhaus artists which were accessible to the post-war generation of artists in Britain. The body of Bauhaus literature is substantial, but only fragments of it were available in post-war Britain, and of those fragments, it was sufficient, in some quarters, for a mere cursory glance to suggest a new way forward in art educational thinking. For these reasons, the following summary of the writings of Kandinsky, Klee and Itten, is selective, confined, in the case of Kandinsky and Klee, mainly so 'Point and Line to Plane' and 'Pedagogical Sketchbook'; documents which were familiar to the basic design teachers, and which best embody the thought and spirit of those Bauhaus artists. Also these writings establish a framework of ideas and attitudes against which one can set the subsequent pedagogy of Victor Pasmore and

Richard Hamilton. Before considering the particulars of their writing, however, it is necessary to establish a few general points concerning the function and nature of foundation course studies.

The notion of a foundation course which would provide a common core of experience for all students regardless of their subsequent fields of specialisation arose out of the early twentieth-century quest for a new unity in art and design. This search for a common core, for an underlying essence which could unite all the branches of the visual arts, was a reaction to the fragmentation which had occurred in the fine and applied arts throughout the nineteenth-century. From William Morris to Walter Gropius, there were frequent appeals for the democratisation of the visual arts, calling for the abolition of those distinctions which separated the fine and applied arts. William Morris was particularly scathing about the élitism of the fine artist and the lofty Romantic notions of genius and inspiration which elevated the position of the sculptor, painter and architect, and insulated them from social need and accountability. Like many of his generation he took his inspiration from the Middle Ages, where he saw a more cohesive social order and a corresponding unity of expression in the arts. The artist in the Middle Ages had no pretensions of being a member of an intellectual or creative élite and held the rank of artisan and it was good honest craftsmanship which Morris regarded as the common bond between all the arts. In most respects Morris's impact was retrogressive in so far that he rejected industrial processes and machine production and could only offer a model of Medieval craft tradition as a way forward. Nevertheless, Morris was extremely influential on design thinking and his rejection of a learned, or preconceived

vision, and emphasis on craftsmanship and the making process as a starting point, was to have profound influence on pioneers like Adolf Loos, and was in line with many other aspects of modern thought. In architectural terms, for example, this led to the notion that building should be the natural outcome of an understanding of traditional craft processes and materials, rather than some product of the imagination conceived like a picture on the drawing board. Emphasis is placed on an internal understanding of building functions and processes rather than the learned application of architectural forms acquired from manuals, textbooks and antiquarian sources.

The appeal for unity among the visual arts was most completely and forcefully expressed in Walter Gropius's 1919 Bauhaus manifesto in which he states:

'The Bauhaus strives to bring together all creative effort into one whole, to reunify all the disciplines of practical art - sculpture, painting, handicrafts - as inseparable components of a new architecture. The ultimate, if distant aim of the Bauhaus is the unified work of art - the great structure - in which there is no distinction between monumental and decorative art.'

The problem was how to make this unity possible and where the common ground could be located. William Morris's advocacy of craftsmanship was only a partial solution to the problem. Search for some common definitive statement on the nature of art has engaged philosophers for generations. Art has variously been defined in terms of form, expression or symbol, but at the beginning of this century the formalist argument was gaining ascendancy. This argument was most emphatically raised by Whistler in the late nineteenth-century and influential critics like Roger Fry and Clive Bell gave it their backing with greater intellectual force in the early twentieth-century. Perhaps the best known formalist statement was put forward by Clive Bell in 1914:

'What quality is common to Sta. Sophia (sic) and the windows of Chartres, Mexican sculpture, a Persian bowl, Chinese carpets, Giotto's frescoes in Padua, and the masterpieces of Poussin, Pierro della Francesca and Cezanne. Only one answer seems possible - significant form. In each, lines and colours combined in a particular way, certain forms and relations of forms, stir our aesthetic emotion. These relations and combinations of lines and colours, these aesthetically moving forms, I call 'Significant Form' and 'Significant Form' is the one quality common to all works of visual art.'²

Although Clive Bell is vague as to what he means by 'significant', the argument is persuasive, suggesting that an appreciation and understanding of the formal elements would provide a means of transcending the separate categories of art. If significant form is the common denominator, then it follows that the study of those formal elements would provide a sound basis in art education for all the related arts, and this could provide the key to that sought after unity.

There was nothing new about the notion of studying the formal elements of art, as each generation restates what these elements are according to changing priorities and needs. The formal elements at one time may be cast in terms of antique statuary and an understanding of the noble tradition of Classical art. What is apparent in the nineteenth-century, is a more analytical approach to those elements, which become increasingly isolated and broken down in a more systematic way. In the field of colour, for example, the work of Goethe, Chevreul, Helmholtz, Blance, Superville and Holzel, represented a major scientific scrutiny of an area which, hitherto, had been the most elusive and intangible part of the artist's domain. This increasing preoccupation with the elements, was all a part of the process of the demystification of art and an attempt to render it more susceptible to objective and scientific methods of analysis. The artists of the Bauhaus who were

conversant with Chevreul, Helmholtz, Blanc, Superville, Hölzel and the innovations of Gestalt psychology, represented a continuation and synthesis of this process, calling for a laboratory art and scientific exactitude. This growing preoccupation with form, and the greater autonomy of formal elements in art, is also manifest in the growth of abstraction, from Cézanne and Seurat to Kandinsky and Mondrian.

The systematic exposure of the formal elements of point, line, shape, plane, colour and so forth, as a means of understanding the inner workings of art, has its parallel in the increasing preoccupation with the function, mechanics and limits of language in philosophical circles. This has led to some speculation as to whether art has a corresponding language of which those formal elements, and the interrelationship of those forms, constitute a corresponding language with grammar, syntax and vocabulary. It has certainly been the case, particularly among those teachers involved with basic design, to speak of the 'grammar' of form and of the 'vocabulary' of art, and it has been suggested that this is an example of the influence of linguistic philosophy on art. The use of the term 'grammar' in relation to the visual arts predates linguistic philosophy. It was a term used by Sir Joshua Reynolds in his Twelfth Discourse of 1784, and Owen Jones's 'Grammar of Ornament' of 1857, and Charles Blanc's 'Grammaire des Arts' of 1867 testify to its continuing use in the nineteenth-century.

Linguistic philosophy may have indirectly established an intellectual climate which made such speculation possible, but on the whole, the use of grammatical terms by artists, is loose, analogical and metaphorical, rather than a serious attempt to locate parallels between visual form and the working of language. The idea that art is a language, is a

useful working metaphor, but few artists would pursue this notion to any logical conclusion accepting that the nature, function and purpose of language is very different from art.³ The analogy has use, in so far that it indicates that the visual arts do have a structure, pattern and working procedures which are susceptible to analysis at certain levels. Also, to invoke 'visual grammar' implies an awareness of rule, system and order, and the employment of such terms, stakes out a position, and strikes an attitude which is set against the intuitive and sensual concept of art.

More importantly, the preoccupation with 'grammar' and 'language' reflects a growing concern with means and processes, rather than ends, and one witnesses on many fronts the disintegration of traditional forms and the rebuilding of new structures on the basis of a new perception of the internal order of things. In the field of architecture, as already indicated, architects began to look at the mechanics of the new engineering, materials and processes, and rejected the nineteenth-century obsession with revivalism and style. Architectural meaning was seen to reside in its function. At the same time, Wittgenstein was stating that philosophy should be seen as an 'activity', concerned with the clarification of thought, and not a doctrine or a dogma.⁴ In the post-Darwinian field of natural history, D'Arcy Wentworth Thompson, who was to have such an influence on Richard Hamilton, was to argue that it made more sense to look at the causes, effects and mechanism in the natural world rather than seek 'final causes' or some grand purpose in design.⁵ In painting and sculpture, what was represented was less important than the means by which that representation was possible, and also the traditional, closed,

monumental forms of art had been atomised by Seurat, and Analytical Cubism and Futurism had exploded the surface of matter and rendered the world in terms of their inner structures, dynamics and forces. It is against this background that the theoretical writing and pedagogy of Kandinsky, Klee and Itten must be understood.

Kandinsky : 'Point and Line to Plane'

The desire for integration and the formulation of a method of investigating the fundamental elements of form are well articulated in a number of essays by Kandinsky. In his essay 'Art Education', Kandinsky deplores the legacy of the nineteenth century which led to the fragmentation, specialisation and disintegration of knowledge, including art education.

'Specialised training without basic knowledge of general humanistic concepts should no longer be possible. What is missing in today's education - almost without exception - is an inner view of life or of the 'philosophical' foundation of the meaning of human activity . . . Education usually consists of a process of more or less forced accumulations of individual facts which students are supposed to learn and for which they have no particular use outside their particular 'field'. Of course, with this type of learning the capacity for 'integrating', or in other words, the capacity for observing and thinking in terms of synthesis, is disregarded to such a degree that, to a great extent, it becomes atrophied. The primary purpose of any education should be the capacity to think in two ways:

1. the analytical and 2. the synthetic.⁶

Kandinsky goes on to explain that the analytical mode of thought equals disintegration and must be supplemented and reinforced by the synthetic mode of thought which is integrative and develops the capacity for the young person to grasp the living, organic links between fields of activity which might seem unrelated. He argues that art education

should not be distinct from other forms of education and that what is taught is less important than how it is taught. Emphasis is placed on the quality of thought process and the ability to think analytically/synthetically, rather than the accumulation of pertinent facts. Knowledge is in itself unproductive, its purpose is to provide the content and method which sustains intuition which is productive. However, intuition without material and method is useless. Kandinsky strikes a Kantian note in his appeal for a productive link between empty concept and blind intuition, free spirit and regulating mechanism.⁷

In his essay 'The Fundamental Elements of Form'⁸, Kandinsky again deals with the theme of unity stating that the Bauhaus is devoted to the idea of an emerging unity of areas which had hitherto been regarded as separate. The converging areas are designated as fine art, science and industry, including all the separate disciplines of painting, sculpture, architecture, mathematics, physics, chemistry, physiology, economics and technical processes. This new synthesis would be brought about by a rigorous analysis of the fundamental elements of form. Abstract form provides the key to this underlying unity and integrative process, and Kandinsky in much of his writing finds a formal model in music which is the most abstract of all the arts. In 'Concerning the Spiritual in Art', Kandinsky states that music is the best teacher⁹ and the whole thrust of his argument endorses Walter Pater's previous assertion that 'all art constantly aspires to the condition of music'.¹⁰ Music should be the model for all, because it represents the most abstract, non-material expression of the arts, and Kandinsky argues that all the disciplines are moving towards a more abstract or spiritual plane.

Unlike painting and sculpture, music has not been concerned with the reproduction of the natural world, as imitation of natural phenomena is, in the main, irreconcilable with music's inherent nature, and Kandinsky argues that where music transgresses this principle, it descends to the level of music hall farce.¹¹ For Kandinsky, nature has her own language, and music hers, and likewise the visual arts should recognise their own intrinsic character and seek more independence from nature. This notion of the separation of art from nature, was forcefully stated by Whistler, endorsed by Victor Pasmore in the post-war period, and will be fully discussed in a subsequent chapter. The freeing of art from nature is necessary in order that art can attain the non-material or spiritual plane which should be art's goal. In order to achieve this, art must shed its reliance on the material world, because imitation and reproduction is an obstacle to that ultimate end. The artist according to Kandinsky, should seek the inner life, or inner path, independent of nature in order to express the highest spiritual value. Music which has manifest the greatest independence from nature, is unfettered and free to reveal the highest expression of the artist's soul.

The metaphysical, or mystical tone of 'Concerning the Spiritual in Art' establishes the character of much of his subsequent writing. Kandinsky was an intensely religious man whose spiritual consciousness invades so many levels of his perception and thought that it frequently has the effect of obscuring the categories of scientific fact and poetic metaphor. 'Concerning the Spiritual in Art' is mainly preoccupied with colour theory and we encounter the strange mixture of scientific awareness, poetic fancy, common sense, metaphysics, and above all, the

unsubstantiated dogma which characterises much of his future writing. Much of the work develops the theme of the relationship between painting and music, of which the following extract provides an apt example:

' . . . the sound of colours is so definite that it would be hard to find anyone who would try to express bright yellow in the bass notes, or dark lake in the treble . . . Colour is the keyboard, the eyes are the hammers, the soul is the piano with many strings. The artist is the hand which plays, touching one key or another, to cause vibrations in the soul.'¹²

Other sections deal with the psychological and associational working of colour, or the way that other senses, such as taste, can affect our apprehension of colour:

'One might say that a keen yellow looks sour, because it recalls the taste of lemon'¹³

While some of these analogies may square with out experience, much of what Kandinsky states in the chapter 'The Language of Form and Colour' takes on a metaphysical aspect with a series of unsubstantiated assertions, which have no basis in common experience. For example, Kandinsky states that the basic forms such as triangles, squares and circles have different 'spiritual values' and that:

'form harmony must rest on a corresponding vibration of the human soul; and this is the second guiding principle of the inner need.'¹⁴

Later in the text, where Kandinsky covers more familiar ground on warm and cold colours, and the spread and contraction of colour, he makes a number of statements which he affirms, in a telling footnote, are founded not on any scientific basis, but 'purely on spiritual experience'.¹⁵ Such footnotes remove certain observations from the realm of perceptual psychology to metaphysics, but the distinctions are not always so clear. Much of Kandinsky's writing shows an awareness of perceptual psychology and an acquaintance with Euclidian geometry, but

in the last analysis, as is the case of the writing of so many artists, these texts are best approached within the spirit of poetic metaphor. It is within that spirit that the following summary of 'Point and Line to Plane' should be understood.

In his book 'Point and Line to Plane', we encounter a rigorous 'dissection' of the primary elements and a call that 'exact scientific examination be made about the pictorial means and purposes of painting'.¹⁶ There is constant reference to scientific method, research, and the necessity that:

'Investigation should proceed in a meticulously exact and pedantically precise manner. Step by step this tedious road must be traversed - not the smallest alteration in nature, in the characteristics, in the effects of microscopic analysis can the science of art lead to a comprehensive synthesis, which will extend beyond the confines of art into the realm of the 'oneness; of the 'human' and the 'divine'.¹⁷

What emerges in Kandinsky is a fusion of scientific empiricism and metaphysics. In 'Point and Line to Plane', Kandinsky does not confine his analysis of the elements to their pictorial function, and his examination of the point begins in terms of speech, where it signifies silence. Taking a standard sentence, Kandinsky demonstrates the practical, functioning of the point as a full stop, showing how transposition of the point can change meaning. He then proceeds to release the point from the confines of the sentence so that it becomes a concrete, autonomous reality, and is thus transported into the realm of art. From the outset, Kandinsky seeks correspondences between visual form and sound, stating that the relative size of the point determines its sound. Size of point is also critical in determining at what stage the point, as it expands and spreads, becomes a shape or a plane. Whether the point is apprehended as a point or a plane, is

also conditional on its relationship to other elements, such as lines, which may be introduced into the pictorial space. The form of the point can vary according to its material condition. As a geometric concept the point is zero and has no material form, as an abstract or imaginative form, it assumes the form of a small round dot, but in its material form (Plate 1) it can assume an unlimited number of shapes. Variation of shape and form would also determine the associated sound. Sound, according to Kandinsky, is inherent in all these molecular forms, it is 'a relative innermost colouration of the basic inner nature'¹⁸ of the form. It is an essence within an essence. Although points may assume shape or plane through an expansion and spread in size, its essential nature is towards concision, contraction and concentricity.

Two statements by Kandinsky are worth quoting because they directly parallel some of the more influential passages in the introduction to D'Arcy Wentworth Thompson's celebrated book 'On Growth and Form' which was to have such a profound impact on Richard Hamilton's teaching.

Kandinsky discusses inner tensions which animate elements:

'Externally, each individual graphic or pictorial form is an element. Inwardly, it is not this form itself but, rather, the tension within it, which constitutes the element.

In fact, no materialising of external forms expresses the content of work or painting but, rather, the forces tensions which are alive within it . . . The content of a work of art finds its expression in the composition: that is, in the sum of the tensions inwardly organised for the work.'¹⁹

This notion of form being the outcome of inner tension, activity or process, was central to modernist thinking across many disciplines. The point is eloquently stated by the naturalist D'Arcy Thompson:

'The form, then, of any portion of matter, whether it be living or dead, and the changes of form which are apparent in its movements and in its growth, may in all cases alike be described as due to the action of force. In short, the form of an object is a 'diagram of forces', in this sense, at least, that from it we can judge or deduce the forces that are acting or have acted upon it: in this strict and particular sense, it is a diagram - in the case of a solid, of the forces that have been impressed on it . . . '20

The evidence of D'Arcy Thompson was later to lend support to the often quoted statement that 'art should imitate nature, not in her external appearance but in her manner of operation.'21

When Kandinsky considers the point in terms of composition, he extends the analogous relationship of pictorial form to musical form, insisting that point and plane possess their own sound properties. As the point moves in relation to the base plane, or as other points accumulate on that base plane, so inner vibrations are generated which lead to a cacophony or 'storm of sounds'. This analysis of the point, as an autonomous entity, which can be manipulated, arranged and composed like notes of music, is firmly echoed by Victor Pasmore in many statements regarding his own work and his teaching. The analogous relationship between painting and music had been asserted forcefully by James McNeil Whistler in the nineteenth-century in his valiant attempt to persuade the Victorian public that painting was something other than visual literature, history or anecdote. His use of musical nomenclature, such as 'arrangement', 'harmony' and 'nocturne', served to emphasise the formal nature of his work.

For the artist, the point exists as a primary unit of composition from which he can compose from within, without any reference to the outside world. But as Kandinsky points out, the point is manifest in the

phenomenal world in both its microcosmic and its macrocosmic forms. It is the atom, the molecule, the cell, the seed, the grain of sand, as well as the constellation (Plate 2).²²

Kandinsky's observations of the point operating in the phenomenal world complements his previous analysis of the autonomous point, and he throws up a dichotomy which was to be manifest in the teaching stances of Victor Pasmore and Richard Hamilton. The point operating independently of the world, would engage the interest of Victor Pasmore, and the point functioning within the mechanics of nature would preoccupy Richard Hamilton. Indeed, several of the examples of natural phenomena which Kandinsky quotes are very close to the exercises and examples which Richard Hamilton would present to his students. As will be discussed at a later stage, the following statement by Kandinsky would receive full endorsement by Richard Hamilton:

'Even though on the surface the individual appearance of plants differ so greatly from each other that their inner relationship remains obscured - even though these phenomena seem chaotic to the superficial eye - they can, nevertheless, on the basis of their inner necessity, be traced back to the same root.'²³

Kandinsky goes on to consider the means and techniques by which a point or mark can be made by examining various graphic processes including etching, drypoint, woodcut and lithography. Emphasis here is on the way that material acts on material, and the way that the character of the point is determined by the tool and the nature of the surface on which that tool acts. The quality of the mark has some bearing on texture as the number of points accumulate over the base plane. Consideration is given to the consistency of the medium, its pigment and binding, as well as the manner of application, whether it be loose

compact, stippled or sprayed. Kandinsky, in this respect does not neglect qualities of imprecision and painterly value.

In his concluding remarks to the chapter on point, Kandinsky reaffirms the notion of the autonomy of abstract form. For him, the difference between abstract art and objective art is that in the case of the latter, the inherent 'sound' of the elements are veiled, whereas in abstract form the elements sing out. For him, representation weakens and stifles the inner resonance of form. He ends by describing (in a vein similar to D'Arcy Thompson) the action of forces on the point. The point should change and grow out of its own centre, from forces acting within, whereas when external forces act upon the point and it becomes uprooted and pushed around the surface, it takes on the aspect of line.

The line, as in Klee's analysis, is the locus of the point set in motion. The repose of the point is destroyed and we encounter the change from the static to the dynamic. Kandinsky defines the line as the 'greatest antithesis' of the point.²⁴ All lines are generated by force and the variations of line are determined by the number of forces acting upon them. Straight lines are produced by one force which propels it in one direction towards infinity. All lines necessarily possess tension and direction. Kandinsky states that the simplest form of straight line is the horizontal and that 'in the human imagination', this corresponds to the line or the plane on which the human being stands or moves'.²⁵ This association of the horizontal line with the ground plane and the horizontal may relate to similar observations of the Gestalt psychologists, of whom Kandinsky was certainly familiar

(and which will be discussed at some length later in this chapter). The vertical line, being the total opposite of the horizontal line is given the attribute of warmth, while the diagonal line contains an equal distribution between warm and cold movements. Like the expanding point, lines have the capacity to generate planes, and Kandinsky describes this in terms of the physical act of a shovel incisively cutting into the earth. Vertical and horizontal lines articulate the flat picture plane, whereas lines which freely radiate from a central point at irregular intervals, and lines which traverse the plane in any formation, create advancing and receding planes (Plate 3).

The advancement and recession of line provides Kandinsky with the appropriate link between colour and temperature. Warm colours advance and cold colours recede. This phenomena is well established in perceptual psychology, but one questions how Kandinsky can make such assertions as the warmth of white, or the coldness of black and give them the sound attribute of quietness. When Kandinsky speaks of the earthly properties of yellow, and the heavenly aspect of blue, we are again in the realm of metaphysics rather than scientific method.

Kandinsky's concern with the balancing of opposites, with black against white, horizontal against vertical and warm against cold, probably owes something to the mystical climate shared by Kandinsky, Itten and Mondrian. In Mondrian's theosophy, being, or truth, is only manifest by its opposite. Itten became absorbed in the dualist faith of Mazdaznan, which has a cosmic vision of the eternal battle between the forces of good (Ahuramazda), and the forces of evil (Angra Mainyu).²⁶ This dualism emerges in Itten's own foundation course which is based on the theory of contrast:

'such contrasts are: large-small, long-short, broad-narrow, thick-thin, black-white, much-little, straight-curved, pointed-blunt, horizontal-vertical, diagonal-circular, high-low, area-line, area-body, line-body, smooth-rough, hard-soft, still-moving, light-heavy, transparent-opaque, continuous-intermittent, liquid-solid, sweet-sour, strong-weak, loud-soft, plus the seven colour contrasts.'²⁷

A similar dualism occurs in Paul Klee's 'Creative Credo' of 1920.

Kandinsky evolves the notion of colour and its relationship to angled lines, but first he asserts that while yellow advances, blue recedes, red like vertical and horizontal, asserts the picture plane. Red, representing the mid-way point between yellow and blue, carries the cold warm characteristics that are properties of the right angle. Therefore, Kandinsky concludes that red is the colour property of the square. The acute angle is the tensest, most active and warmest, and is therefore associated with yellow. The equilateral triangle, having three, sharp, active angles is yellow. The obtuse angle, is more closely related to the line without angle, and therefore tends towards the circle. Hence the cold, passive, blue, obtuse angle and its corollary, the blue circle. Kandinsky thus establishes the primary elements of the red square, yellow triangle and blue circle which was to provide the basis of much Bauhaus design theory.

Fritz Tschaschnig's diagrammatic exposition of Kandinsky's theory of line, angle and colour, graphically illustrates not only the curve and angularity of colour, but also the 'speed' of colour (Plate 4). This notion of colour and speed was to engage the attention of Terry Frost in his teaching of colour. Colour can determine the speed of a line but external forces acting on the line produce the infinite variety of

line which has been diverted from its true course by a constant sideways pressure (Plate 5). The outward tension thus generated pushes the line back in on itself and consequently the curved line is the product of the alternating forces acting upon it. The diverse nature of the forces which determine a straight, angular or curved line, account for the differing character or personality of line. Kandinsky describes the youthful thoughtlessness of the angled line, and the mature energy of the slower, more measured arc of the curved line.

The primary lines are the straight line, the angled line and the curve. Whereas the straight line negates the plane, the curved line has the potential of creating a plane as it arrives back at its own starting point. Thus Kandinsky forges the next logical link between line and plane. The primary planes are the square, the triangle and the circle but shape variation of the plane is infinite according to the forces acting on the plane. Like D'Arcy Thompson's morphological investigations, deformation and transformation of the plane is due to the action of the forces acting on and within the form. Thus the more alternating forces acting on the point, the more diverse the direction and the greater the variety of angled sections making up the plane (Plates 6 and 7). Likewise, wave-like curves can assume the geometric regularity of a section of the circle or be subject to irregular alterations of pressure which produces a free meandering line. Kandinsky describes the positive and negative forces which act on the line creating differing expressions of tension, energy and relaxation. With the thickening and accentuation of line, one reaches the position where there is a state of ambiguity between line and plane. Like the spreading point, the broadening and expanding line transforms itself

into a plane. Throughout his analysis of both point and line, Kandinsky constantly asserts that form is due to the action of forces bearing upon it.²⁸

Kandinsky, having considered the structure and character of individual lines then goes on to investigate complexes of lines. Rhythmic sequences are explored in the form of horizontal bands of vertical lines of differing weights, repetitions of chevrons and the directional emphasis they give, concentric circles, curved lines with repeated accompaniment, and vertical grouping with varied intervals (Plates 8 and 9). There are angular lines with curved accompaniment and circle segments accompanied by free curving lines (Plate 10). The terms that one uses to describe these elements, such as rhythm, accompaniment and interval, have obvious musical connotations, and Kandinsky, again forces the musical analogy. Time is a discernable element of line, and line, like time has length. These are all essentially musical characteristics and Kandinsky makes comparison between thickness of line and pitch of instrument, and goes on to make the following apt analogy:

'The organ is quite as typical a 'linear' instrument as the piano is a point instrument.'²⁹

He goes on to say that it is significant that musical notation itself consists of combinations of point and line.

After considering the presence of line in dance, architecture and engineering, Kandinsky turns his attention to line in nature. He finds his examples in crystal structures, leaf patterns, branch patterns, and spiders webs. Some linear forms he describes as free and loose and he illustrates these forms with microscopic images of Clematis blossom and

the ligament tissue of the rat (Plate 11). Many of these examples are very similar to the imagery which Richard Hamilton was to explore in his 'Growth and Form' exhibition, and in his lecture slides where he delighted in finding the most unexpected configurations of line and point in the natural world. Kandinsky does insist on the separation of art and nature and seeks correspondences and parallels between art and nature, but, for him, they are governed by separate laws and these laws should not be confused. In dealing with the differences between art and nature, Kandinsky argues that they share a common end but they radically differ with regard to the means to that end. What that common end is, is obscurely stated as a higher synthetic order: external + internal.³⁰

Kandinsky indicates a duality of the material and non-material world suggesting that nature and 'objective' art represent the material world, and abstract art the non-material world. One detects the influence of mysticism and theosophy here, being reminded of the esoteric and exoteric paths of the Sufis.³¹ Where Kandinsky deals with line in the natural world, his observations are very close in spirit to those of D'Arcy Thompson.³²

As was the case with the point, Kandinsky considers the material characteristics of line as the produce of various graphic processes. Etching is the medium which, for Kandinsky, renders the thin line in its most absolute and pure form. The woodcut which presents a greater resistance to spontaneous linear manipulation demands a slow careful procedure of working which is more appropriate to the creation of plane, rather than line or point. Kandinsky states that in painting,

the pure line has been considered contrary to its nature and more appropriately expressed in graphic processes, but with the advent of abstract painting, line has been rehabilitated. The new medium of lithography is regarded as the most versatile and flexible of graphic processes, which permits speed of execution and affords a range of expression in which point, line, plane, black, white and colour come into play. Kandinsky concludes his chapter on line by stating that the intermingling of point and line creates a 'language which cannot be attained in words'.³³

Kandinsky begins his chapter on plane by stating that the basic plane is the material plane which is called upon to receive the content of the work of art. It is bounded by two horizontal and vertical lines which have properties of an equal distribution of warm and cold rest, if the basic plane is square. If the plane tends towards the horizontal, then cold rest would dominate and likewise, warm rest would characterise the vertical base plane. Alongside the warm cold distribution, Kandinsky states that there are second 'sounds' which characterise the particular properties of each edge, whether left or right, above or below. Because every living creature stands in relationship to 'above' and 'below', then Kandinsky argues, the basic plane takes on the aspect of a living creature. It is up to the artist who:

'fertilises this being and knows how obediently and 'joyfully' the BP receives the right elements in the right order. This somewhat primitive and yet living organism, which is no longer primitive, but which reveals, on the contrary, all the characteristics of a fully developed organism.'³⁴

Here Kandinsky is again speaking metaphorically and accepts that such notions may seem strange to the non-artist. He states that these ideas

are arrived at through association and feeling on the part of the artist, and should be understood in those terms. Kandinsky makes an association of the act of artistic creation with that of procreation asserting another, commonly held, metaphorical view of artistic production.

The 'above' of the basic plane is characterised by looseness and lack of density, of freedom and emancipation. Forms which occupy this upper region of the basic plane become further removed from each other and unrestrained in movement. The 'below' of the basic plane is characterised by density, resistance and heaviness which increases in gravitational force towards the base. With regard to left and right verticals on the basic plane, Kandinsky questions which is left and which is right on the basic plane and whether it is right to ascribe human characteristics to them. In the case of the human being the right hand side is fully developed and therefore free, while the left hand side is more constrained. Kandinsky argues that the contrary is true of the basic planes where the left is characterised by freedom, looseness and lightness, and inwardly relates to 'above', although not as emancipated as the 'above' region. Likewise the right of the picture plane is defined in terms of resistance and density which inwardly relates to 'below'. The basic plane can be considered as mirroring the artist, reversing left and right. Forms acting within the basic plane from left to right will operate at different speeds reaching a greater stage of rest and repose towards the right hand edge. Kandinsky states that a corresponding expression for 'above' and 'below' would be 'heaven and earth', and in this instance he does acknowledge this description as a poetic, or literary metaphor.

Some of Kandinsky's observations on the tensions and resistant forces within the basic plane do relate to perception and the way we 'read' pictures. The left to right movement which terminates in a position of repose, aptly describes the way we read pictures from left to right like a written text. Our Western conditioning of reading in such a manner lends plausibility to Kandinsky's theory, but it is highly questionable whether his model of the basic plane would hold for the Persian miniaturist conditioned to a right to left orientation. The whole tone of Kandinsky's text suggests that questioning is not in order and the dogma which characterises much of his writing is reflected in his personality and teaching style. Frank Whitford describes him in the following manner:

'Kandinsky's mature years, his reserved, aloof appearance, his stately manner and his preference for dogmatic assertion gave his teaching an air of infallibility. Determined to propagate the notion of objectivity in artistic matters, he spoke as though he were revealing absolute truths and, appropriately enough for a former university lecturer in law, gave the impression of a legislator who would brook no dissent. Students found him cool and not easy to approach.'³⁵

Kandinsky establishes the basic plane of the square as the most objective format, but not necessarily the most static or passive of forms. The circle which lacks any form of angularity, and therefore contains no violent changes of direction, is regarded as the most passive form of the basic plane. Other formats discussed related to the horizontal or vertical disposition of the basic plane. Here Kandinsky makes a point (which was frequently made by Richard Hamilton) that a vertical format is suggestive of the figure, or portrait, and the horizontal of the landscape. Having established the primary formats of the basic plane, Kandinsky then considers divisions within

the plane. Dividing the square into four equal parts, he establishes various weights and tensions which correspond to his analysis of weight and tension in the bounding edge (Plates 12 and 13). Thus the bottom right hand section represents the greatest density in contrast with the top left hand corner which is free and light, while the other two sections are characterised by moderate contrasts in their upward and downward resistances.

So far Kandinsky's analysis of tension, weight and density, has been concerned with the constituent properties of the picture plane itself, rather than independent forces acting on the picture plane. Kandinsky then considers what happens when you put certain lines and characters on that surface. First, Kandinsky considers the impact of directional lines which can best be described as elongated arrow heads, which are placed in vertical, upwards and downwards relationships, and then in an outward pointing horizontal direction (Plates 14 and 15). Finally, diagonal variants are introduced and Kandinsky analyses the various degrees of contrast. Later Kandinsky breaks the picture plane in a serpentine manner. The tension and resistance which the line encounters is analysed and then the diagram is reversed and finally turned upside down. We encounter four different readings of the speed tension and resistance of the line as it traverses to the right, left, up or down the picture plane (plate 16). In another diagram (Plate 17), Kandinsky places a free straight line within the square and notes that the tension and attraction increase the nearer the line is placed to the border of the square. As soon as the line touches the border, tension ceases and the line appears to be relatively limp. In summary,

Kandinsky describes his analysis as forming the basis of a schematic rule.

Four diagrams are used to demonstrate the action of line on the basic plane (Plate 18). In the first, lines divide the square vertically, horizontally and diagonally, forming a rigid division in the form of the union flag. This static division, Kandinsky cryptically describes as 'Silent lyric'. A more dramatic configuration is arrived at if the vertical, horizontal and diagonal lines, emanating from the centre, terminate at different points before reaching the edge or border of the square. The third diagram maintains two unequal diagonal lines which emanate from the centre and which are related to two offset intersecting vertical and horizontal lines. The dynamic momentum is increased in the fourth diagram where all the lines are acentric with an increased number of varied diagonals moving round two offset vertical and horizontal intersecting lines. Kandinsky describes the acentric structure of the final diagram in terms of increased dramatic sound in contrast to the rigid 'Silent lyric' of the first square division.

Having considered the action of line within the basic plane, Kandinsky examines the impact of various planes within the basic plane and the kind of restraining and reinforcing movements which they set up.

Kandinsky describes how a many angled plane which increases the number of its obtuse angles can ultimately make the transition from angled plane to circle. If the circle is divided vertically and horizontally, then quadrants of the circle, in terms of contrasts weights and tensions, have equal correspondence with those divisions analysed in

the square. Kandinsky produces a diagram in which the circle contains a square which is divided by the diagonals thus combining a square, circle and the triangle (Plate 19). This configuration, Kandinsky argues, provides the basis of our numerical system, and thus the basis elements of form provide the meeting point of the roots of mathematics and art.³⁶ The concluding pages of 'Point and Line to Plane' come back to the notion of common ground:

!If this deep relationship actually exists, we have a certain confirmation of our surmise that phenomena which seem to be fundamentally different on the surface and completely separate from each other derive from a single root. Today, especially, the necessity of finding this common root appears inevitable to us.³⁷

Finally, Kandinsky returns to the analytic/synthetic dichotomy in which he states that the goal of his analysis is to seek out the inner life of form, make it manifest and determine its laws. It is only through an understanding of these inner relationships that synthesis is possible.

'Point and Line to Plane' like any great work of art is full of paradoxes. As I have already pointed out, he argues the case for scientific precision, but his procedures are far from scientific, being a series of untested propositions and dogmatic assertions. Nevertheless, on the scientific front there is some evidence that Kandinsky was absorbing some contemporary research into perceptual psychology and this may explain the background to some of these statements and explain the extraordinary relationship and similarity between some of his diagrams and those used by the Gestalt psychologists. There is also an interesting parallel between Kandinsky and Richard Hamilton in so far that both recognised the relevance of perceptual psychology and the part it could play in contributing to our understanding of ways of seeing and

inferring from the data of sense impression. L D Ettlinger's Charlton Lecture 'At Rest'³⁸ deals with Kandinsky and the work of the Gestalt psychologists. Ettlinger suggests that Kandinsky uses psychology of perception as a means of putting his abstract theory on a more objective base. Like Victor Pasmore some generations later the problem for the protagonist of abstract art, was the establishment of a workable objective basis for abstraction. Figurative art was governed by all manner of rules and procedures, and the task of the abstract painter was to establish similar procedures for abstraction. As

Ettlinger states:

'Kandinsky, like many of his contemporaries, wanted an abstract, objective and scientific language of art. The psychology of perception provided the grammar of this language, and Gestalt psychology in particular taught him that images of reality could be valid even though far removed from realistic semblance.'³⁹

Ettlinger states that there is no proof that Kandinsky read Kohler, Wertheimer, or Koffka, but there is circumstantial evidence, in so far that active discussion of Gestalt psychology was common in intellectual circles of the time. The work of Ernst Mach was widely read by non-specialists and his work on colour perception, in which stimuli are isolated in order to test and measure sense perception, certainly finds its echo in Kandinsky's theoretical writings and may account for the stylistic changes in his painting. Ettlinger suggests that the purer and more direct the stimulus, the more forceful the impact, and this may have led to the dramatic simplification of form in Kandinsky's painting. This simplification in Kandinsky's abstract format, which was also influenced by his contact with Suprematism in Moscow, is also governed by the necessity to eradicate free association and figurative inference, which was an inevitable outcome of the complexity of form and activity in his early abstracts. In order to apprehend essential

abstract values, simplification and removal of ambiguity is essential. The researches of Mach and the growing evidence of Gestalt psychology assisted Kandinsky in his search for an objective basis for abstraction and confirmed his direction towards geometric structures in his painting.

Although Victor Pasmore was not conversant with Gestalt psychology he does reach a similar conclusion to Kandinsky on the need for simplicity in abstract art. In an article for the Sunday Times Magazine⁴⁰ Pasmore states that the abstract painter has to simplify and abstract from the heterogeneous forms of nature, whereas the abstract artist has to build out and compose from simple concrete elements. He goes on to say that the abstract artist initially senses a feeling of inadequacy when he compares the formal simplicity of his abstract statement with the visual complexity of naturalist painting, but the inadequacy is inherent in the limitations of the two-dimensional plane of painting and not in abstraction per se. His answer is to extend the whole operation in terms of relief construction and three-dimensions. Gestalt played no conscious part in Victor Pasmore's understanding of abstract form and contributed nothing to his teaching. If Gestalt psychology helped underpin Kandinsky's search for an objective base for abstraction, paradoxically, Gestalt and perceptual psychology also served Richard Hamilton in his quest for new ways of penetrating the visible world.

Ettlinger argues that one of the basic laws of Gestalt psychology: 'Wholes are something more than the sum of their parts', becomes a recurrent theme in Kandinsky's 'Point and Line to Plane'. This is

demonstrated in Kandinsky's observations on the action of the point in nature, art, music and dance, where the implication is that the final composition or action is more than the sum of the parts. This is more specifically demonstrated in his chapter on line where he observes that certain linear arrangements create rhythms and we grasp not the individual line, but the essential unity, order and pattern of line.

The parallel thinking of Kandinsky and the Gestalt psychologists is further reinforced by the following statement which Wertheimer wrote in the same year that 'Point and Line to Plane' was published:

'The field tends to become meaningful and unified, to be ruled by inner necessity . . . the field has its dynamics, stemming from its tendency towards wholeness.'⁴¹

As Ettlinger points out, such a statement could easily be attributed to Kandinsky, who states the following in one of his essays of 1928:

'The elements of drawing and the plastic elements are in constant organic relationship . . . One recognises these relations from the tensions which are nothing but the inner forces of the elements. These inner forces, which I call tensions, are purely active forces, both in theory and practice'.⁴²

As Ettlinger has pointed out, there is no proof that Kandinsky read a single word of the works of the Gestalt psychologists, and it is the case that most of their major publications came out in the late twenties after Kandinsky had published his major writings. As Paul Overy has observed, many of the statements by Kandinsky which most approximate Gestalt theory were made in the earlier publication, 'Concerning the Spiritual in Art' of 1911, before Gestalt theory became common currency.⁴³ 'Concerning the Spiritual in Art', according to Ettlinger, shows the influence of Ernst Mach, a precursor of the Gestalt psychologists. On the whole the evidence is that Kandinsky was aware of the work of forerunners and must have been acquainted with the

early publications of the Gestalt psychologists. The Bauhaus was certainly alive to all forms of contemporary thought and this would certainly include Gestalt theory.

Apart from Goethe's colour theory and perceptual psychology, Ettlinger suggests that Kandinsky may have been indirectly influenced by the Dutch painter Humbert de Superville who published an essay 'Sur les signes inconditionnels dans l'art' in 1827. The content of this essay was summarised by Charles Blanc in his 'Grammaire des Arts' of 1867. Much of what Superville wrote was to influence the post-Impressionists. Superville states that painting is not a 'facsimile of nature but the outward expression of the soul through an imitation of things perceived' and that the forms the artist selects are 'Visual and representative signs of an intellectual concept.'⁴⁴ Not only would Kandinsky endorse such a statement with its metaphysical overtones, but it also parallels similar statements by the post-Impressionists who were trying to break with Impressionist naturalism. It was Signac who similarly stated that art:

'is a creation of a higher order rather than a copy of nature which is governed by chance.'⁴⁵

Superville draws up diagrams of the 'cosmic' vertical line which represents man's upright axis, the ground plane of the horizontal and connecting diagonals to form a triangle. From this he postulates the notion that lines, at certain angles, can relate to feelings and emotions. Thus a sense of tranquility and equilibrium is expressed by the horizontal line; gaiety, joy and agitation by ascending lines. Later, Seurat, who like Kandinsky, tried to come to some intellectual mastery of the formal elements of art, having investigated tone, colour

and composition, turned his attention to the expressive elements in the following way:

'Gaiety = the luminous dominant, warm colours, lines rising from the horizontal; repose = balance between light and dark, between warm and cold colours, the horizontal; sadness = the dark dominant, cold colours, descending lines.'⁴⁶

Seurat was influenced by Superville, and this is confirmed by Signac in the 'Revue Blanche' of 1899:

'The traditions of the Far East and the writings of Chevreul, Charles Blanc, Humbert de Superville, O N Rood and Helmholtz were also of use to him.'⁴⁷

It would be a gross oversimplification to present Kandinsky as an artist who was totally preoccupied with formal matters. As he states quite clearly in 1925:

'I know that the future belongs to abstract art and I am distressed when other artist fail to go beyond the question of form . . . for me form is only a means towards an end and I spend so much time on the theory of form because I want to capture the innermost secrets of the theory of form.'⁴⁸

For Kandinsky, the artist must master the elements of form, but they are not ends in themselves, and to use Wittgenstein's metaphor, having mastered each stage, like climbing a ladder, one must then kick the ladder away.⁴⁹ Kandinsky's art, in the last analysis, was concerned with the metaphysical. Like many of his contemporaries he was interested in the theosophy of Helena Blavatsky and Rudolph Steiner, but he was never a disciple of any particular sect regarding their contributions as a part of a world pool of mysticism. He was a religious man firmly anchored to the Russian Orthodox faith which sustained not only his spiritual life but also provided a continuity to his art. One senses that his paintings, in all their manifestations, function as ikons, concentrating and symbolising those non-material

values which he maintained were the essence of his art. The formal elements provide 'a "Language" which cannot be expressed in words'. At around the same time, Wittgenstein, who in his philosophical investigations was preoccupied with language and its limits, stated:

'There are, indeed, things that cannot be put into words. They make themselves manifest. They are what is mystical.'⁵⁰

Paul Klee: 'The Pedagogical Sketchbook'

For Paul Klee the artist is a part of nature, and therefore dialogue with nature is a necessary part of the creative process. Like so many thinkers of his generation, he stresses the need to penetrate beneath the surface of nature. The old art, for him, was concerned with appearances, but this was no longer sufficient, and did not reflect the complex concerns of the modern artist. The artist has to be something more than a superior camera. In his essay 'Ways of Nature Study', Paul Klee states:

'The object grows beyond its appearance through our knowledge of its inner nature. It grows by the knowledge that a thing is more than its outward appearance suggests. Man dissects the thing and with plane sections demonstrates the inner structure of it, whereby the character of the object is built up by the number and kind of the required sections. This is visual penetration, partly by means of the simple, sharp knife, partly with the help of more delicate instruments that can reveal the material structure of the material function to us.'⁵¹

Klee states that the artist can draw conclusions about the inner nature of the object from its exterior appearance and through his communion with nature, the artist achieves a synthesis between his 'outer sight' and his 'inner vision'.⁵² What he produces as a result of this dialogue is not a reproduction of natural phenomena, but:

'Constructions are formed which deviate totally from the optical image of the objects and yet, from an overall point of view, do not contradict it.'⁵³

The artist follows the processes of nature in such a way that nature is reborn in the picture. In this respect, the notion that the artist produces correspondences, or constructions, rather than imitations, foreshadows the arguments of Charles Biederman and Victor Pasmore.

Dialogue with nature is a consistent theme in Klee's writing. The natural world is in a constant state of flux, of change, of becoming, and the work of art should be animated by nature's essential dynamics. As Klee states in his 'Creative Credo', 'All becoming is based on movement', and movement is the necessary condition for the production of art. Like Kandinsky, Klee is preoccupied with the formal elements of art which he categorises in terms of point, line, plane and spatial energies, but like Kandinsky, he does not see these formal elements as ends in themselves. For Klee, 'Formalism is form without function'.⁵⁴ The artist needs to be in contact not with the forms as ends in themselves, but with the dynamic processes which govern and determine those forms. Forms have to be investigated in terms of their inner nature, and in one instance, Klee illustrates this by means of cross-sections of the calla lily, showing how the inner structure determines its outward appearance.⁵⁵ Other diagrams demonstrate that the outward appearance of a form is determined, not so much by its inner structure, but by internal forces. Paul Klee echoes D'Arcy Thompson's point that the form of an object is a 'diagram of forces . . . that are acting or have acted upon it.'⁵⁶ In searching for this inner dynamic the artist reveals the unseen truths and thus, rather than reproducing the visible, he 'makes visible'.⁵⁷

The internal movements which determine the microcosmic form, are just one fragmentary expression of a cosmic rhythmic order. Klee describes how a man who is pacing the deck of a ship generates his own movement, which is relative to the movement of the ship, which in turn is relative to the rhythm of the sea currents the rotation of the earth, its orbit and the courses of the planets. Likewise, even the passive form of a sleeping man is made up of body rhythms which paradoxically unify at rest. The universe is conditioned by a duality and counter movement, which Klee expresses in metaphysical terms not dissimilar to the dualist beliefs of Itten. In another essay, Klee states that no concept is thinkable without its opposite, and in 'Creative Credo' every energy requires its complement to bring itself to rest outside the field of forces'.⁵⁸ The notion of the force field and the active/passive dichotomy, brings to mind the flow diagrams which were to form a part of Richard Hamilton's early teaching. Movement is implicit in the genesis of form:

'What was in the beginning? Things moved so to speak freely, neither in straight nor crooked lines. They may be thought of as simply moving, going where they wanted to go, for the sake of going, without an aim, without will, without obedience, moving self-evidently, in a state of primal motion.

There was just one thing - mobility, the prerequisite for change from this primordial state.'⁵⁹

The pedagogic writings of Paul Klee are complex, and it is not within the scope of this chapter to summarise all his Bauhaus notes, so I shall deal mainly with the 'Pedagogical Sketchbook' which represents a selective summary of his Bauhaus writing and is the work which was most familiar to Victor Pasmore and the post-war generation of art educators. The 'Pedagogical Sketchbook' is a sparse summary of his output, but it represents a useful ground-plan, and where necessary I

will supplement this with observations taken from his lecture notes and essays. As Sibyl Moholy-Nagy states in her introduction to the 1953 translation, the 'Pedagogical Sketchbook' is not an academic textbook, but a document which indicates certain levels of thought through hint and allusion rather than dogmatic assertion. Taken by itself, it represents a very incomplete sketch of his pedagogical writings, and much of it is unintelligible without reference to the Bauhaus notes which mainly precede and give substance to it.

Sibyl Moholy-Nagy divides the four sections under the headings of Proportionate Line and Structure, Dimension and Balance, Gravitational Curve and Kinetic and Chromatic Energy. Beginning with the elemental point which is static and at rest, the point is set in motion and lines are formed. Tensions between one point and another form lines. In his lecture notes, Klee describes the 'universal cause' as a reciprocal tension, or a striving for two-dimensions. In his analysis of line, Klee is far less dogmatic than Kandinsky, preferring the use of metaphor and allusion. He begins with a free line and 'takes it for a walk' allowing it to wander aimlessly across the page. His diagrams show different lines accompanying each other, dominant and subordinate lines, cursive lines (Plate 20 and 21), angular lines, musical notation and Greek key patterns. In his lecture notes, Klee describes convergent and divergent lines which are like the pathways of a man accompanied by a free running dog, or the companion who occasionally crosses our path. Klee's language is not the language of the laboratory, but whimsical and metaphorical.

Angular lines, as they criss cross and double back on themselves create planes, and where the curved line circumscribes an ellipse or circle, we return to a position of rest (Plate 22). Lines moving in parallel produce planes like the square and the rectangle, whereas parallel rotating lines produce the circle (Plate 23). The triangle comes into being where a point enters into a relationship of tension with a line, and when a series of lines converge from a broad base onto a point which then forms the apex of the triangle. Klee broadly defines the nature of the circular, square and triangular planes, as active, medial or passive according to the level of linear or planar activity. Where line is most active, the plane is passive, and vice versa a dominance or planar activity results in a passive line. The medial position is achieved when there is an equation of linear and planar activity where the plane is simply defined in terms of line. Klee summarises these points by what he describes as a linguistic analogy to tree felling (Plate 24). To fell a tree is active, to fall is medial, and the felled state is passive. Causation, like everything else in Klee's world, is determined by motion.

In dealing with structure, Klee produces diagrams of the simplest structural rhythms consisting of repeated groups of vertical and horizontal lines. Vertical and horizontal lines are repeated and arranged up, down and laterally. Where they combine and intersect, we arrive at the simple two-dimensional structure of the chess board (Plates 25 and 26). In the 'Pedagogical Sketchbook', Klee attempts a quantitative, numerical analysis of the rhythmic structures of the chessboard, both in its vertical and horizontal, and in its diagonal formats. In his lecture notes, Klee makes an analysis of movement in



connection with one of his paintings 'Chess' which comprises of a checker-board ground with a series of vertical lines of differing weights and intervals which produce an illusion of space. The vertical lines act as a series of posts which recede in perspective, zig zagging their way through space. These are simple diagrams which deal with time, movement and space, as well as perception and illusion. Such considerations of proportion, interval, space, perception and illusion, were to play a major role in the content of the foundation course of Victor Pasmore and Richard Hamilton.

Klee's next propositions are concerned with structure in the natural world, and here, in dealing with anatomy, Klee takes on what Reyner Banham describes as one of the master subjects, or 'masonic mysteries' of academic art.⁶⁰ He begins by defining structure in terms of the smallest particles which make up the matter from which plants and animals are constructed:

'Bone matter is cellular or tubular.
Ligament structure is a sinuous-fibrous web.
Tendons are continuous with the connective tissue of the muscle, strengthened by cross grain.'⁶¹

Klee, in his lecture notes, describes the living organism as a kind of motor which strives for movement. Even in repose, the human skeleton represents a balancing act in which the bones are actively engaged in mutual support. The ligaments connect the bones and their function is relatively passive compared to what Klee describes as the 'motoric' organisation which involves the functioning of the bone, tendon and muscle. As in his previous analysis of line and plane operating according to active, passive and medial laws, so his analysis of anatomical mechanics follows the same logic. The bone is passive, the tendon medial and the expanding and contracting muscle is active (Plate

27). These functions are relative, and when the muscle function is considered in relation to the brain, then the order changes and the brain becomes the active participant, the muscle medial and the bone passive. As Victor Pasmore pointed out, Klee is concerned not with nature's effects, but with her processes.⁶²

The functioning mechanical aspect of nature and the man-made world are further reinforced by examples of plants, propagation, blood circulation, the mechanical hammer and the watermill (Plate 28). The waterfall activity operates the medial waterwheels which in turn activate the passive hammer. The categories are relative, because in the example of the watermill, the waterfall is defined as medial, because the energies of gravity and the obstructing mountain take on the active role, and the watermill becomes the passive recipient of all these actions. In the case of the plant, the complex interaction of soil, seed germination, nutrition and growth, is seen as the active element, while the respiratory organs of the leaves are medial, and the blossom is passive. The circulatory system aptly illustrates a constant movement of active, passive and medial processes, as the active heart pumps the passive blood through the medial respiratory organ of the lungs and back to the active heart (Plate 29). In his lecture notes, Klee distinguishes between voluntary and involuntary movement, between those actions which are a product of the will, and those, like breathing and the circulation of the blood, which are continuous and involuntary. Involuntary movement, like the circulation of the blood, reinforces Klee's notion of a universe made up of relative cycles of movement.

Klee concludes the first part of the 'Pedagogic Sketchbook' with a consideration of movement within the work of art and as a constituent of the creative act. In his lecture notes Klee states:

'Movement is inherent in all becoming, and before a work of art is, it must become, just as the world became before it was . . .'⁶³

A work of art is the outcome of the quality of productive and receptive movement as well as additive and subtractive processes. The work of art grows stone upon stone, or is reduced chip by chip. Klee defines and distinguishes those processes which Victor Pasmore was later to describe in terms of modelling and carving or the building and reductive methods. The creative process consists of productive action followed by a counter-movement of receptivity:

'In plain English: the creator looks to see what he has achieved so far (and, says the Bible, it was good).'⁶⁴

In describing the receptive process in the eye, Klee comes remarkably close to the perceptual psychologist, J J Gibson's analysis of eye movement, where he describes the eye as 'grazing' over the surface focusing on portion after portion. Gibson's explanation of the way the eye explores the visual world (which I will consider at some length later), concludes that perception is essentially active and can be physiologically explained in terms of scanning movements. Once again, movement is implicit even in the relatively passive moments when production ceases and the artist takes stock.

Section two of the 'Pedagogical Sketchbook' opens with a statement on dimension. Left (right), top (bottom), and front (back) are diagrammatically stated. The next step is the change from the Euclidean world of geometric planes and parallel lines, to the world of optical

illusion and perspective. This transition is made more expansively in Klee's lecture notes than in the lean propositions of the 'Pedagogical Sketchbook'. Klee begins with a presentation of two parallel lines and then connects them with regularly spaced vertical lines. This geometric figure is then tilted at a deflected angle and is transformed into a perspective view of railway lines viewed from the side and then frontally (Plate 30). We thus enter the third-dimension by means of optical illusion. The receding railway line is then transformed into a three-dimensional box, or space frame by the addition of vertical posts rising from the position of the sleepers and joined at the top by a series of horizontal 'beams' (Plate 31). In the next series of diagrams (Plate 32), Klee takes out the sleepers from between the lines and presents us with five receding parallel lines, the centre one being a central vertical axis. This central vertical axis represents the plumbline where we ourselves stand and witness the illusion. By shifting the vertical axis in relation to the spectator we bend the angle of view and thus the perspective changes.

In dealing with the concept of horizontality Klee states that the horizontal line 'signifies the proportionate height of the subject'.⁶⁵ The line which connects all the spatial points is the eye line or eye level. Klee proceeds to present a number of diagrams which show a series of space frames placed on, above and below the eye level. In his diagram of a house facade in which the vertical lines converge towards a vanishing point Klee makes some interesting observations on what may be a logically correct representation and a psychologically incorrect representation (Plate 33). Logically vertical lines should recede to vanishing point and we are familiar with this uncomfortable

phenomenon in photography, but, as Klee states, human beings put a veto on such a reading of form, because we need the constancy of the horizontal and vertical in order to maintain our sense of balance. Klee economically makes his point with the simple diagram of the tightrope walker with his pole. This point enables Klee to proceed from dimension to balance.

A series of simple diagrams demonstrate the differences between symmetrical and asymmetrical balance (Plate 34). Certain imbalances of weight, colour, lightness and darkness, are rectified by asymmetrical re-arrangements of the elements. Klee describes in very simple terms how certain imbalances can be compensated, like when the stumbling man broadens his base of support by an outward step of the leg. Finally, Klee deals with balance and construction by building towers in which the weights are equally and alternately distributed around a vertical axis. The 'Pedagogical Sketchbook' gives emphasis to a rather mechanistic notion of balance, whereas the Bauhaus lecture notes published in the 'Thinking Eye' are supplemented with examples of Klee's paintings and drawings which convey more the notion of pictorial and compositional balance.

Section three is very brief dealing with seven propositions concerning movement and the elements. Klee's characteristic arrow is used to indicate the gravitation pull of all forms to the earth's centre. Movements are analysed in relation to the elements (Plate 35). A bullet is fired into the air and its parabolic trajectory is described in terms of diminishing and accelerated energy. The climber ascending a staircase expends an increasing amount of energy as he reaches the

top, while a stone as it bounces down the mountain accelerates towards the bottom. The legs of the swimmer represent loose, rhythmic continuous movements. Other forms of loose continuity are represented by the meteor in its orbit and the air-balloon as it rises through various temperatures. This section which underlines the essential theory of dynamics behind all of Klee's writing, acts as a preface to the last section dealing with kinetic and chromatic energy.

The first of the symbols of forms in motion is the spinning top which is symmetrically balanced but which can only be sustained in an upright position when it is animated by gyration (Plate 36). The pendulum represents an equilibrium of movement, being in a constant state of motion and counter-motion. In his lecture notes, Klee describes the pendulum as:

' . . . an expression of temporal unity, a compromise between movement and counter-movement, between gravity and momentum.'⁶⁶

In making the transition between the gentle swing of the pendulum, towards, what Klee describes as the 'purest of mobile forms', the circle; we have to free the pendulum from the force of gravitation. The circle remains in constant motion and is the same regardless of whether the force is generated from right or left. Gravitational force gives way to centrifugal movement. A lengthening or shortening of the radius, combined with peripheral movement will produce the dynamic spiral (Plate 37). Klee becomes almost poetic where he describes the movement of the spiral in terms of its outward and inward movements. The outward movement of the spiral is release towards freedom and is essentially progressive, whereas the regressive movement towards the centre leads to ultimate destruction.

The following series of propositions concern the arrow which is a symbol which has many layers of meaning for Klee and is a recurrent motif in his art. The arrow is a symbol of man's aspirations to reach out beyond his physical limits. Klee exhorts man to be like the winged arrow which aims at fulfilment but usually falls short of the mark. The flight paths of the arrow are analysed according to the varying angles of the point and rudder. The trajectory of the earthbound arrow overcome by gravitational pull is contrasted with the projectile which breaks free of the earth's gravity and finds liberation in its own orbit. In his lecture notes concerning 'The Creation of Moving Forces', Klee shows a series of arrow shaped moving particles which converge on a point Z. The accumulated concentration of these particles towards a point also accounts for the tonal formation of the 'black arrow' (Plate 38). The black arrow represents a tonal gradation from white ground and base towards an acceleration of energy and concentration in the arrow point.

From the black arrow, Klee proceeds to describe further progressions of colour concentration in the red arrow and green arrow due to increase in colour saturation towards the point. Other arrows are defined in terms of temperature from water, through vapour to fire, and finally, chromatic temperature is charted according to warm and cold colours. In the last sections the directional aspect of the arrow is eliminated and we progress to infinite movement where the relativity of directional movement is irrelevant. Movement and counter-movement converge on the neutral grey which becomes a central pivotal point from which all the spectral colours emanate. Thus we arrive at the colour

wheel which represents a synthesis of opposites and in which there is neither a here nor there, but a radiant spectral immanence. On this poetic note, Klee ends his 'Pedagogical Sketchbook'.

For a colourist of Klee's magnitude the conclusion of his 'Pedagogical Sketchbook' comes as something of an anticlimax. As Lawrence Alloway states at the symposium held on Klee's 'Pedagogical Sketchbook' at the ICA in 1953.

'Colour has always been the most intractable element in aesthetics. From a colourist of Klee's genius it was legitimate to hope for more than the conventional circle of the spectrum: not only is this a serious let-down after the preceding original diagrams, it is a contradiction of Klee's dynamic world views.'⁶⁷

There is no shortage of colour theory in Klee's Bauhaus lecture notes, and it may be that Klee deliberately avoided stepping into the labyrinth of colour when faced with the task of making such a sparing selection from his lecture notes for the 'Pedagogical Sketchbook'. As I have pointed out, the 'Pedagogical Sketchbook' does represent a rather enigmatic summary of his teaching theory, serving to indicate certain levels of thought, rather than as an explanatory or elucidatory textbook. Perhaps that is the strength of the work, in so far that its very elusive quality prevents it from being a handbook.

Itten

Johannes Itten was the first to establish a foundation course at the Bauhaus. He was invited to join the staff at the Bauhaus in 1919 on the recommendation of Alma Mahler-Gropius who was acquainted with the work on basic form which he had produced with his students in Vienna. Itten did not publish any comprehensive account of his teaching until

late in his life when he produced a retrospective account of his teaching in 'Design and Form' 1963, which followed an earlier book of colour theory, 'The Art of Colour', in 1961. 'Design and Form' presents an account of his teaching and is illustrated with examples of his students work. It is far less theoretical than the writing of Kandinsky and Klee and deals more with the practical aspects of teaching, and for this reason it reads more as a handbook on basic form teaching. It is ironical that the only other book to be published on basic design, which is very much a practical guide, and the only work specifically written on the subject, should be Maurice de Suasmarez's 'Basic Design: the Dynamics of Visual Form' published one year after Itten. Two different generations burst into print at the same time. However, Itten's influence on this second generation must have been indirect because his pedagogic theory was published after basic design thought had crystalised in post-war Britain. His influence would have been on the general creative climate of the early Bauhaus which percolated through to the Pasmore generation by means of Kandinsky and Klee and through such documents as the Gropius and Beyer Bauhaus catalogue of 1938.

If the post-war generation of art educators were more familiar with the pedagogic theory of Kandinsky and Klee, rather than Itten, nevertheless, Itten's contribution was essential to the formative period of Bauhaus pedagogy and many of his ideas and educational assumptions remain enduring. Itten's first statement on the main task of the basic course could quite easily have been written by Victor Pasmore, Richard Hamilton, Harry Thubron or any of that generation:

'The Basic course presented me with three tasks:

(1) to liberate the creative forces and thereby the artistic talents of the students. Their own experiences and

perceptions were to result in genuine work. Gradually, the students were to rid themselves of all the dead wood of convention and acquire the courage to create their own work.

(2) To make the students' choice of career easier. Here, exercises with materials and textures were a valuable aid. Each student quickly found the material with which he felt the closest affinity; it might have been wood, metal, glass, stone, clay or textiles that inspired him most to creative work . . .

(3) To present the principles of creative composition to the students for their future careers as artists. The laws of form and colour opened up to them the world of objectivity. As the work progressed it became possible for the subjective and objective problems of form and colour to interact in many different ways.⁶⁸

Itten regarded his foundation course as something of a liberating process and a means of diagnosing the particular creative strengths of his students. His first priority was towards creative and imaginative freedom which would prepare the ground for practical, technical and commercial training. He states that those students who begin with a commercial and technical training without receiving a creative and liberating initiation, seldom felt the drive towards innovation. Itten also felt that training should represent a balance between physical, sensual, spiritual and intellectual forces, and the creative person should also be a well integrated individual. One means of preparing his students for this liberating experience was through relaxation and breathing exercises. Itten's Yogic practises were bound up with his mysticism and interest in Zoroastrianism and Early Christianity. It also explains the principle of contrast and dualism in his teaching. The dualism was expressed in terms of various investigations of contrast such as black-white, rough-smooth, and so forth. Each student had to approach these problems by experiencing them with their senses, 'objectivise them intellectually, and realise them synthetically'.

Itten would usually begin his course by asking his students to consider contrast in terms of black, white and tonal values. Students would make tonal charts from black to white or draw circles with the task of defining them in tonal terms according to the relativity of tone which they contained or were surrounded by. Some of the tone scale exercises, in which students were asked to make as many tonal transitions from black and white as possible, do anticipate some of the tonal and colour investigations which Terry Frost was to make many years later (Plates 39). Another exercise which anticipates the positive/negative preoccupations of Richard Hamilton, was the task of observing from nature and making tonal reversals of what was being observed (Plate 40). Although many of the problems were investigated on an abstract plane producing charts, diagrams and abstract compositions concerned with tonal balance, most of the work which Itten illustrates is figurative. Based on his own art education under Adolf Holzel, Itten also valued the idea of analysing Old Master paintings according to the exercise in hand, and thus Itten presents us with tonal analyses of Goya and Giotto (Plate 41).

In 'Design and Form', Itten deals very briefly with colour, presenting us with a few paragraphs which represent a bare summary of his colour theory which is dealt with more comprehensively in his book 'The Art of Colour'. He stresses the need to quickly disassociate colour from form in order to fully apprehend colour harmony. The two basic vehicles for colour exploration are the colour wheel and the colour star (Plate 42). Itten applies his theory of dualism and defines seven types of colour contrast. Pure colour contrast where pure colours are randomly placed next to each other, tonal contrast of colour, warm-cold contrast of

colour, complementary contrast of colour and simultaneous contrast of colour. Simultaneous colour contrast differs from complementary contrast in so far that his analysis is more physiological and concerned with the phenomena of after images. Finally, Itten deals with the qualitative and quantitative contrast of colour. Qualitative contrast is concerned with luminous and dull colour, whereas quantitative colour is based on the opposition of coloured areas of different sizes. Itten's colour star is made up of a central ring of pure colour which radiates out towards pure black and converges towards pure white. Additions of black pigment produce a range of ochres and tertiary colours which darken to pure black in the points of the star, and the addition of white towards the centre creates a sense of increased luminosity and energy towards the centre. Itten does not confine his colour study to abstract analysis and optical and physiological concerns, but then progresses towards a consideration of the expressive dimension of colour, setting such themes as 'Night', 'Christening', 'Funeral', 'Fairground', and the 'Seasons'.

One important aspect of the basic course was the exploration of materials and texture, in which the students were introduced to the ideas of contrast through material. These exercises were concerned with the handling of material against material in which physical tactile experience was paramount (Plate 43). Itten would make chromatic arrangements of texture and the students would be involved in making collages and montages in relief and three dimensions (Plate 44). These exercises in assemblage, and the environmental potential of these ideas were close in spirit to work of Kurt Schwitters and certainly anticipate some of the work which was to come out of Richard Hamilton's

foundation course. The student response to the notion that anything and everything are potential media for the artist is described by

Itten:

'They began to rummage through their grandmother's chests of drawers for the odd treasures hoarded for a lifetime, through kitchens and cellars; they ransacked the artisans workshops, the rubbish dumps of factories and building sites. The whole environment was rediscovered - rough pieces of wood and wood shavings, steel wool, lengths of wire and rope, polished wood and sheep's wool, feathers, glass, and tin foil, grids and weaves of all kinds, leather, fur and shiny tin cans.'⁶⁹

Texture would be studied not simply by constructing collages, reliefs and three-dimensional forms out of found materials, but also by observational and memory drawings of objects (Plates 45 and 46). Itten also drew attention to texture in macro and micro-form. Photography came into its own in this respect and much use was made of photomontage. The camera could be used to record surface textures and can also reveal the texture of everyday scenes, such as the texture of a crowd, of a market, of an arrangement of chairs and tables, or the texture of a city revealed in aerial photography (Plate 47). Photograms produced by placing objects on light sensitive paper can dramatically reveal silhouette forms and inner structures, and Itten indicates the potential of microphotography and the unexpected world that could reveal. Textures were not merely seen as qualities which were found, recorded or manipulated, but also were consciously made through the marks of the chisel, or brush, and through the weavers loom. The whole field of texture was seen as an important ground of experience for all the branches of art, craft, architecture, design and photography.

In his chapter on the theory and practice of forms, Itten states that exercises in abstract composition serve to improve ways of thinking as

well as suggest new modes of representation. They were not conceived merely as formal exercises. Students would begin by studying the essential character of the primary forms and in the three-dimensional sphere were asked to make spherical, cubic and conical forms out of clay. This procedure, whereby the students would slowly build a primary shape, was to become one of the major features of shape making under Geoffrey Dudley's foundation course teaching at Newcastle. In terms of two dimensional shape making, Itten introduced the students to concepts of shape by means of gestural exercises and bodily movement. Compositions were then made based on square, triangular or circular forms, and these abstract compositions were frequently extended into the sphere of applied design where students might be asked to design a room which was unified according to a certain form character. Line exercises were produced which were concerned with vertical and horizontal contrasts and which investigated short, long, thick and thin proportions of line (Plate 48). Compositions would be made based on the triangle or circle and then various combinations of these formal elements. The primary shapes would then be divided by arcs, angles, or vertical and horizontal lines according to the character of the primary shape. The division of the shape involved consideration of interval and proportion.

Proportion would be studied according to various mathematical systems including the golden section and the proportions of the harmonic triangle. Proportion can be stated by means of measurement, but students, through their study of contrasts, would also investigate the way that proportions can be affected by optical and illusory factors (Plate 49). Mathematics may determine certain proportions, but the

judgement of the eye was not neglected and many of these exercises were resolved in terms of observational drawing. Thus, the proportions of the human figure would be studied, or the figure analysed in terms of the circle, the triangle and the square. Area division and proportion would be considered in terms of positive/negative factors which could then be investigated as repeat patterns (Plate 50). The positive/negative element in composition, an aspect which was to become an important feature of Richard Hamilton's foundation course, was regarded as paramount, not only because it was indicative of Itten's dualist thinking, but because it held the key to understanding certain formal relationships. As Itten states;

'The positive-negative congruent forms are the most precise means of dividing an area. Knowledge of them strengthens and deepens the students' logical thinking in terms of form.'⁷⁰

The two dimensional positive/negative exercises resulted in repeat patterns which were aptly translated into woven and printed textile designs.

Investigations of three-dimensional form would begin with the simple shapes built of clay and then proceed to more complex forms which exploited cubic, spherical and triangular characters. Three-dimensional and geometric forms were then reproduced imitatively on a two-dimensional surface. These abstract shapes would be drawn as still life groups occupying a logical pictorial space, but students would then proceed to freely draw abstract planes, volumes and lines which would float in space, creating all manner of spatial ambiguities and illusions (Plate 51). Finally, students would then look at weight and accent in pictorial composition. This would take the form of formal abstract exercises in which points are distributed and the visual paths

between these points are mapped. Weight and distribution of accent and how the eye moves from one point to another is analysed in a series of abstract drawings and from nature. Throughout all these exercises, Itten was consistent in holding a balance between purely formal and abstract resolutions of problems, and investigating them in terms of observation and analysis of the natural world.

Itten's course was not concerned merely with analysis and problem solving but, ultimately, also with expression and concern for the individual and their subjective responses. It was the metaphysical and subjective, and expressive dimension of his work which raised the greatest hostility to his teaching and signalled the beginning of the conflict between objective and subjective modes of teaching which characterised the turbulent history of the Bauhaus. The more subjective and expressive work can be seen in those assignments concerned with rhythm and expressive form. Rhythm, like many of the previous exercises, would be introduced through bodily movement, where students would be encouraged to march and dance. Then, these rhythmic experiences would be translated onto paper where the hand would literally dance with the brush, frequently drawing with both hands simultaneously (Plate 52). Investigations of rhythm as beat, as repetition, would be followed by explorations of continuous movement which were frequently expressed in calligraphic form (Plate 53). Drawings of natural and abstract form were produced by sweeping, unbroken gestural lines. Elements of chance would be introduced by throwing down matchsticks and drawing the configurations with uninterrupted lines producing calligraphic and pictagraphic forms reminiscent of Chinese calligraphy (Plate 54).

The orientalism which is manifest in Itten's teaching is not confined to Persian Zoroastrianism, but relates closely to Taoist and Zen thinking as well as to Breton's theory of psychic automatism. Through his Yogic breathing exercises, and by means of bodily movement, Itten relaxed his students and mentally and spiritually prepared them for free, spontaneous, gestural painting. It was by these means that Itten imparted the notion of the unity of spirit, expression and gesture. The life spirit of the artist is embodied in the calligraphic mark. The naturalness and liveliness of the mark expresses the fact that the work of art is animated by the same forces as the natural form represented. It reinforces Klee's philosophy that art is a product of nature. Above all, Itten saw many of these experiments as a means of liberating the creative spirit. The exploitation of chance, the 'controlled accident', the way in which students were encouraged to allow the media to 'talk back', to avoid over control and improvise, were all means of liberating the expressive force and subjectivity of the individual. The acceptance of chance, and what has been described as the 'art of artlessness', has clear parallels with later Abstract Expressionism, and it is well established that many of the post-war American avant-garde were influenced by Zen thought. Awareness of developments in American painting and a knowledge of Zen philosophy certainly influenced the teaching of Harry Thubron and Alan Davie at Leeds in the fifties. What has been regarded as the most eccentric and idiosyncratic aspect of Itten's teaching, can now be seen to have foreshadowed a major aspect of post-war modernist thought.

Itten's invocation of one of the main principles of Chinese painting, 'that the hand and the heart be one', is a far cry from the laboratory

art of Kandinsky. Kandinsky's writing is concerned with purely abstract and theoretical propositions which reflect the creative preoccupations of a pioneering abstract painter who is seeking some theoretical basis for abstraction. Klee's writing is more enigmatic and poetic, and less concerned with abstract theory. Klee attempts to reveal the essential dynamism of art and nature, arguing that the formative actions of the artist, are, at root, the same as the formative actions of plants and animals. Klee seeks to erradicate the dichotomy of art and nature. Itten's work lacks the intellectualism of Kandinsky and the poetry and whimsicality of Klee, allowing more scope for intuition, spontaneity and expressionism. It is grounded more in his practical experience as a teacher, and his ultimate concern for free expression, reflects something of his early training as a primary teacher. The terse propositions and aphorisms which characterise much of the writing of Kandinsky and Klee, serve to indicate a plane of consciousness and thought, rather than a clear guideline for action. In spite of all the differences of emphasis and the balance between intellect, intuition and judgement, all three artists did ultimately share a common mysticism.

Itten's writing is not put forward as a theoretical text, but as a retrospective account of his teaching. 'Design and Form' is an historical account of his teaching at Weimar, Berlin, Krefeld and Zurich, and not a prescription for basic design teaching. It is profusely illustrated with students' work, and for this reason stands the risk of being interpreted as an exemplary publication, or as a handbook on basic design. As an historical document it breaches the gap between theory and practice, and above all, shows how well

established a basic form, or basic design pedagogy was in the nineteen-twenties. If the writings of Klee and Kandinsky seem to be pitched on a remote plane far away from studio practice, nevertheless, the groundwork was laid for a radically new pedagogy which was spread throughout Europe and America after the demise of the Bauhaus in 1933. In spite of the sojourn of Walter Gropius, Marcel Breuer and Laszlo Moholy Nagy in this country, in the nineteen-thirties, this country was singularly insular and resistant to many major aspects of European modernism. When the post-war generation of art educators were trying to come to terms with European modernism in their own creative work, they simultaneously sought a radically new pedagogy which took account of the revolutionary changes which had occurred in modern art. The British art schools were dominated by, what were regarded by many, as nineteenth-century models of art education. As Victor Pasmore has stated in connection with his own course:

' . . . in the schools of Painting and Sculpture in London and throughout the country, there was no connection between the antiquated nineteenth century teaching and the revolutionary developments in modern art. In my mind the course was nothing more than an attempt to set the ball rolling to bring art school teaching up to date.'⁷¹

In seeking for a radical alternative model, it was natural to look at the only available coherent body of modernist pedagogic theory; the Bauhaus. In the immediate post-war period, some Bauhaus literature was published and in spite of the many contradictions, this material did have, in varying degrees, some impact on British art education.

PART TWO

The Influence of the Bauhaus on Basic Design

To what extent basic design teaching reflects a dissemination of Bauhaus pedagogy is a contentious point. As a broad generalisation it can be argued that the basic design courses introduced by Victor Pasmore, Harry Thubron, Tom Hudson, Richard Hamilton and William Turnbull, owe much to Bauhaus precedent and do represent an application of Bauhaus pedagogy in post-war Britain. On the other hand, it would also be true to say that few of the authors of basic design were knowledgeable of the Bauhaus, and several would not only deny its influence, but express some hostility towards it. These apparent contradictions represent a paradox which characterises many art historical situations where events cannot be explained by a neat causality. What can be argued is the fact that were it not for the Bauhaus, and the creative and intellectual climate which it created, the basic design courses may not have been possible.

Pasmore, Thubron, Hudson, Hamilton and Turnbull, had differing degrees of knowledge and awareness of Bauhaus principles, and all reacted in different ways and with differing degrees of acceptance. Some were more knowledgeable of the Bauhaus than they were prepared to admit, wishing to claim total originality in their teaching and denying any external influence. Occasionally, some of the protagonists would invoke Bauhaus principles in order to establish a general precedent, but later reject any direct Bauhaus influence. Most were sub-consciously influenced by the Bauhaus, where absorbed knowledge is bound to condition certain

attitudes without necessarily governing specific procedures. In one sense all had a claim to originality, because all were creative artists and teachers in their own right, and therefore they applied established principles in terms of their own discoveries and creative concerns. No one copied Bauhaus methodology in crude terms, because as creative artists that would have been against their instincts, and besides, there were no clear Bauhaus models to copy. For some, the Bauhaus represented a symbol of modernism, rather than a recipe or precept to follow. It vaguely pointed a way forward, but it was sufficient, as a symbol, to trigger the creative imagination of the artists concerned. As I shall demonstrate, the Bauhaus was one of many influences which came to bear on basic design teaching. No movement grows out of a vacuum and the basic design movement makes little historical sense without the context of the Bauhaus.

Since the period of Lethaby and Mackintosh, design initiatives had passed from this country to Europe, and during the thirties Britain had become very insular and resistant to the main-stream of European modernism. In the sphere of the fine arts, abstraction had taken root in the work of only a handful of artists, beginning with the abstract Vorticism of David Bomberg, and sustained throughout the twenties and thirties in the work of Ben Nicholson and Barbara Hepworth. In the field of design, the first contact with the Bauhaus was made by Jack Pritchard who was in touch with Walter Gropius, and visited the Bauhaus at Dessau in 1931 in the company of Serge Chermayeff and Wells Coates. Wells Coates was a member of the avant-garde group 'Unit One', founded by Paul Nash in 1933, consisting of John Armstrong, John Bigge, Edward Burra, Tristram Hillier, Barbara Hepworth, Henry Moore, Ben Nicholson, Herbert Read and Edward Wadsworth.

A nucleus of this group, namely Barbara Hepworth, Henry Moore, Paul Nash and Herbert Read, had settled in studios near Haverstock Hill, Hampstead, forming a most influential artistic community. This Hampstead community was enlarged by the arrival of a number of influential European emigres fleeing from Nazi Germany.

Sponsored by Jack Pritchard, Gropius arrived in Hampstead in 1934 and settled in a flat designed by Wells Coates. The same year Marcel Breuer arrived, followed by László Moholy-Nagy and Naum Gabo in 1935, and Piet Mondrian in 1938. Gropius's work in Britain consisted of the house he designed in partnership with Maxwell Fry at 66, Old Church Street, Chelsea, and the Impington Village College in Cambridgeshire. The house in Old Church Street stands adjacent to a house designed by Serge Chermayeff and Erich Mendelsohn, providing a demonstration of the impact of international modernism on one corner of London. At Impington Village College, Gropius was engaged, not just in an architectural project, but in an educational initiative in collaboration with Henry Morris, the chief education officer for Cambridgeshire. Another significant educational position which Gropius held was membership of the Advisory Committee at the Central School of Arts and Crafts. Gropius also contributed to the dissemination of Bauhaus pedagogy with the publication of 'The New Architecture and the Bauhaus' in 1935. In this he discussed the teaching methods of the Bauhaus, promoted the concept of the essential unity of art and design, and refuted hard-line functionalism. He advocated a balance between imaginative design and technical proficiency arguing that imagination was the humanising factor in design. Nevertheless, the essential radicalism of Bauhaus theory did not appeal to the rather cosy, gentlemanly, atmosphere of post-Arts and Crafts Britain.

Walter Gropius's message was received only by a small avant-garde, and was seen to be too uncompromising by many in the art and design establishment. Frank Pick's statement that design should be: 'modest and not too grandiose in scale . . . not too logical in form . . . a reasonable compromise between beauty and utility, neither overstressing beauty till it degenerates into ornament, nor overstressing utility until it becomes hard and bare' does express something of the British spirit of compromise.¹ In spite of Gropius's appeal for a balance between imagination and technical proficiency, and his rejection of hard-line rationalism and functionalism, the Bauhaus model was too radical for British taste. Fiona MacCarthy, in her discussion on the reception of Bauhaus theory in this country, locates a fundamental naivety in design attitudes which was revealed when Gropius visited Birmingham.

'In Birmingham a member asked to see the Bauhaus timetable, thinking that it might be applied to the teaching at Birmingham College of Art and Crafts. Gropius was horrified: "It would not help you much," he replied with scorn, "it was the atmosphere."²

With few commissions and little encouragement, Gropius left for America to take up a chair at Harvard University. Herbert Read wrote to the 'Times':

'Professor Gropius has been resident in this country for the last three years, and it was the confident hope of many people that we were to have the benefit of his outstanding talents for many years to come. In this we have been disappointed.'³

Jack Pritchard, who had invited Walter Gropius and Marcel Breuer to Britain, was head of the Isokon Furniture Company and he immediately appointed Gropius and Breuer as design consultants. Breuer designed a range of bentwood furniture for the company, as well as executing commissions in interior design and designing the Exhibition Pavilion for

the Royal West of England Show at Bristol. In 1935, Moholy-Nagy joined the Isokon Company and worked in the advertising design department. Moholy-Nagy became involved with the film industry when he met John Grierson of the GPO Film Unit. He worked on the film 'Lobsters' and collaborated with Alexander Korda on 'The Shape of Things to Come', as well as being commissioned to make a film on the new architecture at London Zoo. Moholy-Nagy held several exhibitions of his photographs and his work was published in 'The Streetmarkets of London' by Mary Benedetta.

One important collaboration emanating from the Hampstead avant-garde was the publication of 'Circle' in 1937. This was essentially a publication to further the aims of constructivist art and it did represent an articulate collective statement. The contributors to the 1937 publication included, Naum Gabo, Piet Mondrian, Herbert Read, Le Corbusier, Ben Nicholson, Barbara Hepworth, Henry Moore, J D Bernal, Maxwell Fry, Marcel Breuer, Siegfried Giedion, Walter Gropius and Moholy-Nagy. This collection of essays represented an important international collaboration and set the tone for several subsequent publications where various architects, painters, sculptors, designers, and above all, scientists, pooled various ideas to establish a common ground. The concern with the relationship between art and science, something which becomes a major concern in the immediate post-war period, is established in Gabo's editorial.⁴ J D Bernal, who was on the advisory committee for Richard Hamilton's 'Growth and Form' exhibition of 1951, contributed an essay on 'Art and the Scientist'. Gropius wrote on art education, Giedion on engineering and aesthetics, and Karel Honzik's essay on Biotechnics, where he relates biological structure to engineering and architecture,

also anticipates the ground explored by Richard Hamilton in the 'Growth and Form' exhibition of 1951.

At one stage, while they were in London, Gropius and Moholy-Nagy discussed the possibility that a new Bauhaus should be opened in London. Unfortunately, nothing came of this idea, and in 1937 Moholy-Nagy was invited to Chicago to open a new Bauhaus there. While holidaying with Walter Gropius and his wife, Breuer, Bayer and Schawinsky, planned an exhibition of the Bauhaus for the museum of Modern Art in New York, which took place in 1938. Walter Gropius was joined at Harvard by Marcel Breuer and Siegfried Giedion, Mies van der Rohe was offered an appointment at the Illinois Institute of Technology in Chicago, Gyorgy Kepes was installed at the Massachusetts Institute of Technology, and Joseph Albers went to Yale. Albers later taught at Black Mountain College, North Carolina, where an avant-garde pedagogy was sustained well into the fifties by the contributions of John Cage, Merce Cunningham and Robert Rauschenberg. Mondrian's studio was damaged by bombs in 1940, and he was asked to evacuate to St Ives by Ben Nicholson and Barbara Hepworth, but being very much an urban animal, he chose New York. Gabo did join Nicholson and Hepworth in St Ives where he stayed until 1946 and then left for America. Britain's loss was America's gain, but the legacy of Gropius, Breuer, Maholy-Nagy, Gabo and Mondrian, was not lost on the post-war generation.

The first application of anything like Bauhaus pedagogy in this country occurs at the Central School of Arts and Crafts in London, under the direction of William Johnstone. The school had been founded by Lethaby and George Frampton in 1896, and from the beginning had been staffed

mainly by part-time teaching. Lethaby had believed in a master apprentice relationship, with practicing master craftsmen passing on their skills to student apprentices. Count Kessler, from Germany, studied the system introducing ideas into Germany which were later to influence the Bauhaus. When William Johnstone took over in 1947, the Central School consisted of a School of Drawing, Painting, Modelling, Etching and Allied Subjects; a School of Book Production and Graphic Design; a School of Interior Design and Furniture (in which were included Ceramics and Stained Glass); a School of Textiles; a School of Theatrical Design; and a School of Silversmiths' Work and Allied Crafts.

Continuing with the Lethaby tradition, the majority of teachers were part-time, being artists and craftsmen engaged on yearly contracts. Painting or Fine Art was a relatively minor activity with emphasis placed within that school on drawing. The whole college was geared towards industry and it was necessary to have professionals teaching who were actively engaged in the industrial and business world. Johnstone preferred short-term contracts because he felt that teachers used themselves up in the space of ten years. In many ways, the Central School of Arts and Crafts, with its emphasis on the world of design, rather than fine arts, did represent an approximate model to the Bauhaus. Unlike an institution like the Slade, the Central School provided an appropriate setting for limited experimentation and introduction of Bauhaus teaching methods.

William Johnstone introduced basic design courses because he felt that students needed a broadening experience which such a course could provide. Johnstone claimed that he was teaching a basic design course as

early as 1927 when he was involved with day-release apprentices at the South of Scotland Technical College. The course consisted of a number of exercises in abstract shape and shape relationships and was mainly applied to signwriting and typography. It had little relationship to Bauhaus pedagogy but Johnstone was attempting to apply a more avant-garde teaching method which he had absorbed in Andre L'Hote's studio in Paris. Johnstone regarded his School of Paris training as far more advanced than anything which had been essayed in Britain, and he was quite scornful of the Slade tradition and Euston Road endeavours. Apart from his own teaching, Johnstone claimed that basic design courses had been introduced by Albert Halliwell and Jesse Collins in the 1930's. The introduction of basic design courses at the Central, served not only as a broadening process for the student, but also provided a means of greater co-operation and integration between departments. Basic design was a means of seeking common ground and shaking the student out of narrow technical confines.

'A student would often come to a senior art school already cluttered up with a great amount of undesirable and obsolete techniques while still lacking a realistic grammar of art from which he could begin his more advanced study of design. He knew, for instance, about 'shading' but almost nothing about form; he knew something about the shape of objects but nothing about the relationship of those shapes to their surroundings; he knew that a line is an outline, but little of the varying qualities of line. In many cases he had not been taught to use his eyes.'⁵

Johnstone saw that basic design was a means of steering the student away from a traditional art education which had emphasised descriptive and literary values. Technical skills of description and representation were not enough and the student needed to be trained to understand the inner mechanics of art, to probe beneath the surface and become more discriminating.

'The term 'basic design' was used to describe a way of teaching the grammar of design and the means of communication in a twentieth century idiom. It was a course of training in the realisation of the qualities of line, pattern and form; exercises were spatial experiences, not literary ones, and dealt entirely with the art of space rather than the art of time. The training in these courses varied between exercises in action drawing and loose scribbling in a completely free and inconsequential manner, and exercises requiring order and precision. There was a continuous transition between order and disorder, fanciful and careful planning, with all the variations of experience that this interaction can give. The contrast between the precision in the use of formal shapes and the freedom and diversity possible in the play element, act as a series of tensions for the student. A formal logical art pushed to its utmost can lose its vitality unless it is continuously reinforced by the unexpected.'⁶

The tension between formal and spontaneous action, and avoidance of sterility, is one preoccupation which distances many of the basic design courses from the Bauhaus. Both Johnstone and Pasmore express the view that Bauhaus teaching had become rather rigid and academic.⁷ Johnstone states that:

'In my case, my teaching of basic courses stemmed directly from my experiences of the the School of Paris at L'Hote's studio. This could, I felt, give a greater depth and a more imaginative approach to the subject than the somewhat limited (even sterile) approach of the Bauhaus, which by this time was beginning to be a new academy.'⁸

In conversation with Victor Pasmore, Pasmore expressed the view that the Bauhaus was too 'idealistic' and he preferred a more fluid approach with a less predictable outcome.⁹

Nevertheless, in the broadest terms, the Bauhaus did represent a model, and Victor Pasmore states that:

'The foundation courses established by William Johnstone both at Camberwell and the Central School were essentially Bauhaus because he adopted its policy of employing fine artists (painters and sculptors) to teach it to industrial and other craft designers.'¹⁰

The point is also endorsed by Richard Hamilton who expressed the view that Gropius had put in artists like Klee, Kandinsky and Schlemmer, into

the design and craft departments at the Bauhaus in order to agitate the situation.

'I think that Johnstone thought that would be the way to operate at the Central School; that he would get young artists that he found interesting to come in and be associated with the department for half a day a week, to act as a kind of stimulus and throw in some different ideas.'¹¹

There is no doubt that Johnstone did put in young artists to stimulate certain departments where conservative craft attitudes did stifle innovation. Johnstone encountered the perennial conflict of the craftsman who lacked the imagination to produce exciting design, and the artist who had the ideas and imagination, but lacked the skill to realise them. Unlike Adolf Loos who advocated a clear separation between art and craft, claiming that there was really no place for the exercise of the imagination in the design of certain utilitarian objects, Johnstone followed Gropius in placing the artist in the workshop.

'The Jewellery and Silversmithing School rejected all forms of modern design as completely irrelevant and useless. Mr Emerson the Head of the School, complained continuously that all the drawings and designs he ever saw were impractical, and it seemed to me that where you had the most craftsmen and the fewer artists, you had the greatest stagnation.'¹²

While Johnstone profoundly admired the exceptionally high standards of craftsmanship within several of his departments, he nevertheless was prepared to take a few risks and employ artists who showed flare and imagination. The Silversmithing Department was enlivened by the appointment of Mary Kessel and Alan Davie (who was to make a significant contribution, as a Gregory Fellow at Leeds University, to Harry Thubron's course at Leeds School of Art). Johnstone believed that artists not only brought a fresh vision to craft and design teaching, but he also felt that it was a good thing for artists to teach outside their own

specialism. For a painter to teach drawing and painting could be a deadening experience, and Johnstone believed in the element of risk and irrelevance.

'There is a great value in irrelevancy, in the non-practical, as opposed to the necessary restriction of craftsmanship. Any art teaching that is to have a lasting educational value must have as its aim the enriching of the student's artistic sensibilities in order to withstand in later life the continuing deteriorating pressures of the world. No teaching system can be allowed to degenerate by repetition until it is merely a means whereby a student can 'cram' for a job. The unconscious suggestive images of those artists who are sincerely working out their problems of art in their own terms are of the most vital importance. Contact with the Master is the essence of all teaching.'¹³

Johnstone's appointment at the Central School occurred in the immediate post-war period when the country was trying to reconstruct and rebuild its industry. There was a national demand for industrial design training and it was obvious that the old, gentlemanly, amateurish arts and crafts mentality was insufficient to meet the country's growing needs. While America had been creating chairs in industrial design in her most prestigious universities, Great Britain had remained stagnant, and the outcome of this inertia was the export of much needed personnel to fill those vacant chairs in the American universities. William Johnstone approached County Hall and was given a travel grant to visit the United States to study industrial design training. During his brief spell in Britain, Gropius had been on the advisory committee of the Central School, and through this visit Johnstone hoped to update his knowledge of design teaching in America and re-establish some kind of link with former Bauhaus personnel. On his visit, Johnstone went to New York and met Marcel Breuer, George Nelson and Raymond Loewe. In Boston he met Serge Chermayeff and Mies van der Rohe. Johnstone spent some time at Taliesin West with Frank Lloyd Wright who tried to persuade him to open a studio there and stay permanently. On his return from America, Johnstone found,

to his dismay, that in his absence, Robin Darwin, who had recently been appointed as head of the Royal College of Art, had appointed many key staff from the Central to posts of importance at the Royal College. Darwin had been given funding for a major expansion of industrial design and he recruited his staff from the Central School of Arts and Crafts.

The outcome of this was that Johnstone had to recruit new members of staff and this gave him some scope to employ younger artists of promising talent, many of whom had studied in Paris, and therefore came with fresh and new ideas. Among the new appointments were artists who were to become the most influential of their generation, and who, at the time, were to form the nucleus of the Independent Group. William Turnbull and Eduardo Paolozzi, following their years at the Slade, had spent some time in Paris in contact with French Surrealism, and returned to Britain holding exhibitions at the Mayor and Hanover Galleries in 1949 and 1950. Johnstone, who regularly visited the galleries looking out for talented artists appointed Turnbull to the Department of Furniture Design and Paolozzi to Textiles. In 1950, Johnstone saw Richard Hamilton's exhibition of 'Reaper' engravings at Gimpel Fils, and claims that he appointed Hamilton to the Department of Industrial Design on the strength of that exhibition (but Hamilton disputes this, saying that it was 'Growth and Form' of 1951 which secured his appointment to the Central in 1952). Nigel Henderson was given a post in the Department of Graphic Design, Reyner Banham lectured in Art History, Alison and Peter Smithson in Architecture, and Patrick Heron and Roger Hilton in the Department of Fine Art.

Victor Pasmore, who had worked with Johnstone at Camberwell, where most of the leading Euston Road painters taught in the immediate post-war period, moved to the Central school where he took responsibility for day-release apprentices. The Central School of Art adopted broad Bauhaus principles in employing artists in the crafts and design studios, but it would not be true to say that there was a clear art educational philosophy being hammered out at the school. According to Victor Pasmore, everyone had a free hand to run their own basic courses and although ideas were discussed and shared, there was no common philosophy or method. Richard Hamilton recalls the situation by saying:

'You must understand that it was all part-time teaching, so I would be in contact with one group of students for only a couple of hours a week, and it wasn't really possible to make any serious pedagogic theory about what we were doing there. It was just very hard to mouth and the main reason why most people were teaching there was because it was the one place in London where there was a sufficiently enterprising principal who would give young artists a couple of hours a week . . . we were completely isolated from one another.'¹⁴

In one sense there was a Bauhaus structure in allowing artists the freedom to work out their own ideas within the craft and design studios, but what they taught, was more a reflection of their own creative preoccupations rather than a conscious application of Bauhaus pedagogy.

Knowledge of the Bauhaus in the early and mid-fifties, was only of a very generalised nature and the pedagogic writings of the Bauhaus were not easily available. There was far more interest and knowledge in the Bauhaus artists, as artists, rather than in their pedagogic theory. Most of the pioneers of basic design in the fifties disclaim Bauhaus influence. Harry Thubron, in an interview with Peter Sinclare states that he knew very little about the Bauhaus but was very interested in Paul Klee:

'I don't think anybody knew much about what had gone on at the Bauhaus - I don't think even Victor. He knew about 'Point and Line to Plane' and that's about all. None of us read any books at that time, although, to manage to survive within the secondary modern school scene, I did a lot of work on Werner Haftmann's 'Paul Klee', just to keep going from day to day, over a week, and over three months.'¹⁵

Harry Thubron's reference to the 'secondary modern school scene' relates to a three month period between leaving Sunderland School of Art and taking up his appointment at Leeds, when John Wood persuaded him to teach at the Joseph Rowntree Secondary School at New Earswick, York. Herbert Read was involved with the school and Thubron was given free rein to develop an experimental course. What occurred at Joseph Rowntree school was interesting, because this was the earliest attempt at working through basic design ideas with secondary pupils, and it also influenced the thinking of the Scarborough Summer Schools which involved many teachers. Thubron drew his ideas from Paul Klee, working through Werner Haftmann's book, 'The Mind and Work of Paul Klee'.

Harry Thubron's general ignorance of the Bauhaus is endorsed in correspondence from Victor Pasmore:

'I think that Harry Thubron was right when he denied any knowledge of the Bauhaus teaching; indeed none of us had, except, of course, Johnstone and Halliwell, and also, I think, Hamilton. Being influenced by Klee's painting is one thing, but by his teaching is quite another. In any case Klee's pedagogical writings are almost unintelligible!'¹⁶

John Wood, the education officer responsible for adult education in the North Riding of Yorkshire, contradicts Thubron's statement:

'That isn't true, Harry was soaked in Bauhaus ideas. Harry was a strange fellow and you never saw him reading, but he would read all sorts of things, and certainly Harry knew all about the Bauhaus . . . he was already using, or reviving, or rediscovering Bauhaus ideas. I went to see Mies van der Rohe in America, and it was very early on'.¹⁷

Thubron was to admit that not only was he influenced by Klee, but that he had also read Klee's 'Pedagogical Sketchbook'. There is a general consensus that Victor Pasmore was more influenced by Bauhaus thought than Thubron, and that his thinking was more structured and systematic. The manner of Pasmore's thinking and his whole philosophy of abstraction and construction will be dealt with in another chapter, but it is obvious that the Bauhaus is one of many influences. The depth of Pasmore's knowledge of Bauhaus practice has been challenged by several commentators including Norbert Lynton, who taught history of art at Leeds College of Art, worked with Harry Thubron, and attended one of the basic courses taught jointly by Victor Pasmore and Harry Thubron at the Scarborough Summer School. In conversation with Perter Sinclare, Norbert Lynton made the following observations:

'The thing I want to comment on . . . is this Bauhaus problem. It seems to me that it is more or less the core of the whole story. Victor Pasmore talked of point, line and plane. These seemed to be the basic stages through which a basic course should pass. Certainly at Scarborough we started making dots, and then after we had done dots for a couple of days, we went on to doing lines, and then we did planes. . . . I have a terrible suspicion that Victor Pasmore got his basic course from the title of Kandinsky's book, and I have a second suspicion, and that is that his knowledge of the Bauhaus will not have gone much beyond that.'¹⁸

Knowledge of the Bauhaus was of a very generalised nature and the pedagogic writings of the Bauhaus were just becoming available. The first English translation of Kandinsky's 'Concerning the Spiritual in Art' was made by Michael Sadler in 1914. Michael Salder, who knew Kandinsky and had collected his paintings, was Vice-Chancellor of Leeds University and a very influential figure in the promotion of avant-garde art in Leeds. He had written a paper on Kandinsky's 'Concerning the Spiritual in Art' in 'Rhythm' as early as 1912. Sadler's collection of modern art had been an inspiration to Henry Moore, and Herbert Read, who

had been a friend of Sadler's housekeeper, had access to the collection. An American translation of Kandinsky's 'Point and Line to Plane' appeared in 1947 and Faber and Faber printed a translation of Paul Klee's 'Pedagogical Sketchbook' in 1953. The museum of Modern Art 'Bauhaus' catalogue was available, but in general terms, knowledge was scant, even among those scholars with a specialist interest. Norbert Lynton, in conversation with Peter Sinclare describes the difficulties in getting hold of Bauhaus literature:

'In the middle fifties there was the that Museum of Modern Art book about the exhibition done in 1938, which gave a very politically biased description of what the Bauhaus did, and said very little about the basic course. In fact, it had very few illustrations relating to the basic course, so that really there was almost nothing on which one could build a basic course. I think the Bauhaus became, in fact, a kind of distant symbol, almost as distant as Buddhism, at that stage. The big difference between Victor Pasmore and Harry Thubron was that Victor felt this kind of clear structure of one, two, three, as a firm ladder up which you moved . . . I keep being struck by how little people knew about the Bauhaus, and how difficult it was for me, when I started to try and find out about the Bauhaus, as a result of my interest in Klee and how difficult it was to get firm information about the place at all. I can read German, which Victor Pasmore, I don't think can.'¹⁹

There was no doubt that Paul Klee was a most influential figure at this time, almost epitomising the spirit of modernism for a whole generation. Most of those artists involved with the basic design movement acknowledge the influence of Paul Klee, either in their work or in their teaching. Victor Pasmore was not as vague or ignorant in his knowledge of the Bauhaus as Norbert Lynton suggests. If Pasmore states recently that Klee's pedagogical writing was unintelligible, it was not so unintelligible as to prevent him from being one of the principal speakers on a symposium on Paul Klee's 'Pedagogical Sketchbook' held at the ICA on the 24th November, 1953. This symposium was organised to coincide with an exhibition of Curt Valentin's collection of Paul Klee drawings, and was

followed up by a further symposium, in which Pasmore was involved, discussing the motion that the late work of Paul Klee represented a decline in his powers. The symposium on Paul Klee's 'Pedagogical Sketchbook' was chaired by William Coldstream and the main speakers were, Victor Pasmore, Lawrence Alloway, H S Williamson, and Quentin Bell. H S Williamson was principal of Chelsea School of Art, and Quentin Bell was then a lecturer in Art Education at the University of Newcastle-on-Tyne, where Victor Pasmore was to be appointed Master of Painting some months later.

An account of this symposium was published in 'Encounter', April 1954, by Reyner Banham. Reyner Banham remarks on how a split can be observed between the younger and older generations by their attitudes towards the 'Pedagogical Sketchbook' and the difference between the earlier and late Klee. Banham observes that the younger generation were more willing to accept Klee's late work and were more receptive to the content of the 'Pedagogical Sketchbook', despite the paradox that the 'Pedagogical Sketchbook' represents a summation of the thinking and experience of the early Klee. He then goes on to put the 'Pedagogical Sketchbook' into its historical context in line with other key pedagogical works including Serusier's 'ABC de la Peinture', Charles Blanc's 'Grammaire des Arts de Dessin' and Alberti's 'Della Pittura'. However, in certain fundamental aspects, Banham argues that Klee's work differs from its predecessors in being anti-academic, in its rejection of static ideal forms, and its insistence on the dynamic action of creativity. It is not a handbook or a textbook and the very vagueness of the document seemed to generate the division of opinion within the symposium, between those who wanted a

clear manual, and those who were content with the plane of ideas which Klee indicated.

Quentin Bell and H S Williamson gave Klee's text a close scrutiny and questioned the logic and language of many of his propositions.²¹

H S Williamson found the captions and diagrams incompatible and he objected to Klee's hyperbolic language. Both Bell and Williamson found the 'Pedagogical Sketchbook' incomplete and lacking in clarity, and Williamson objected to the inadequacy of Klee's treatment of anatomy and perspective.²² What Williamson and Bell demanded was a pedagogic statement which was clear and unambiguous.

Reyner Banham argued that Klee was not interested in perspective and anatomy as such, and that his references to anatomy and perspective served only for a means of comparing processes rather than giving any scientific check on the truth of nature. The essence of Klee's writing is concerned with the philosophy of process and can only be understood or appreciated if it is accepted as incomplete, vague, or semi-poetic. Both Victor Pasmore and Lawrence Alloway argued that the document could only make sense within context. That context was provided by the publication of Klee's 'On Modern Art' by Faber and Faber, which was the text of Klee's Jena lecture of 1924. Victor Pasmore insisted that the 'Pedagogical Sketchbook' be seen as a complement to the Jena lecture which established the broad concepts against which the more specific and technical aspects of the 'Pedagogical Sketchbook' would make sense. All, in one sense, agreed that the 'Pedagogical Sketchbook' was incomplete, in so far that it represented a highly selective distillation of his pedagogic theory, and that it needed context and explanation. Rayner

Banham also pointed out that it is the very nature of pedagogic writing to present an incomplete and limited dimension of the case.²³ Banham and Pasmore argue that the 'Pedagogical Sketchbook' was written from within the living and active teaching process, and for this reason, one would look in vain for finalised rules.

Pasmore's observations on the 'Pedagogical Sketchbook' are worth quoting in full, because they not only reveal his attitude to one aspect of Bauhaus pedagogy, but they represent one of the few statements by Pasmore on art education in general:

'The study of nature which Klee proposed, therefore, is not of the kind which tradition expects of the artist. If anatomy and perspective are considered it is not in relation to external effects as in traditional textbooks, but as analogies of internal processes. The traditional attitude towards nature is defined by Reynolds in his discourses when he speaks of all rules as being "no more than teaching the art of seeing nature." It is at once clear however that Klee was not concerned with seeing nature in the sense of observing it from a distance. "Art", he writes "does not render the visible, but renders visible." This implies that the representation of things seen was not his concern. It is what the painting becomes that matters. If the 'Sketchbook' can be described as an anatomy, therefore, it is not the anatomy of nature's effects, but of its processes. As such, its teaching centres around how to think, rather than how to see . . . From that it is clear that Klee's attitude to nature is not strictly scientific. Instead it was one of inference and identification. It is through identification with nature's processes and not knowledge of them that Klee sets out to develop his art . . . However, if the 'Sketchbook' is unscientific in the strict sense of the word, it is not anti-science. Nor, as its concern with the mechanics implies, is it anti-machine. On the contrary, science and mechanics are its inspiration. The significant factor which it is necessary to comprehend, therefore, is that it's outlook is essentially objective. In this respect it differs from all other modern teachings which are primarily subjective. The artist who aims purely at self-expression will find little help in these notes. On the contrary, Klee aims to provide the student with a concrete and objective basis from which to develop. He seeks this basis in nature: but it is not in nature's finished results, as in traditional art, but in its processes. Instead of subtracting from things seen, Klee begins with the concrete formal elements - line, tone-values and colour. These he examines from every angle and in all their manifestations; observing their

actions when submitted to the various conditions of mechanical and emotional forces. What happens to a line and what it becomes is his concern. If this is correct we must conclude that the 'Sketchbook' is essentially constructive. Indeed it forms the basis for a research approach to art teaching. By modern teaching, however, I do not mean painting from life, or the study of the Old Masters, but the creative teaching practiced in the elementary schools or as advocated in a recent Penguin publication by Norman Colquhoun, entitled 'Paint your own Pictures'. Self-expression of an emotional kind, is rightly the basis of this teaching, but it does not account for the whole artistic or creative process. The growing mind wants to construct, rather than express. I often wonder if child art is fully appreciated. The moderns see in it, and take from it only emotional expression. But, for the child, are not these primitive images also an attempt at construction? It is possible to look at the phenomena of child art as constructions as well as expressions. This does not mean to say that Klee's 'Sketchbook' is suitable only for children. On the contrary, it is essentially adult. The new creative spirit, inherent in the modern movement of art, requires an appropriate objective and constructive basis. Klee's 'Pedagogical Sketchbook' will undoubtedly go a long way toward meeting this need.²⁴

Reyner Banham's paper concludes by asking how relevant Klee's 'Pedagogical Sketchbook' is to the contemporary situation. Alloway suggests that Klee's methods could be potent in suggesting an alternative; representing a compound of precision and adventurousness to the existing polarity between the academics and the intuitives, who dominate art establishments. Banham argues that it would be fatuous to recreate Bauhaus teaching in nineteen-fifties Britain as this could only result in 'imposing a style on activities in which it is not inherent.'²⁵ However, Banham suggests that the liberating method of the Bauhaus which aimed at releasing the innate capabilities of the student, does provide a radical alternative to established academic practice. Quentin Bell and H S Williamson seemed to regard Klee's book as something of a mine-field for the unsuspecting student:

' . . . it is some measure a dangerous and pernicious work. Nothing is more pitiable than a mind that is ready to be humbugged . . . by a great name and a maze of pretentious language.'²⁶

Pasmore, Alloway and Banham all agreed that any lasting relevance in the 'Pedagogical Sketchbook' lay in its general method rather than in any absolute or particulate truths it may contain. For Victor Pasmore, the penultimate sentence in his passage quoted above, can be taken as the key to his own pedagogy. As an artist, having embarked into the field of abstraction, Pasmore was seeking an objective equivalent in abstract terms to those rules which govern figurative art. The objective, concrete reality, and manipulation and operation of those elements of form, such as point, line, plane and colour, did present a radical way forward.

The question as to how indebted Pasmore was to Bauhaus practice still remains. As Norbert Lynton pointed out, the Bauhaus is to some extent the core of the whole story. It seems inconceivable that any course of study which adopts a method proceeding from a close scrutiny of point and line to plane, should not owe something to Bauhaus precedent. In correspondence with Victor Pasmore, already quoted, Pasmore denies much knowledge of the Bauhaus, and states that he finds Klee's pedagogic writing unintelligible. However, he states that at the Central School of Art certain Bauhaus procedures were adopted in allowing painters and sculptors into the design departments:

'Nevertheless in spite of their Bauhaus application to the design schools, the basic courses at the Central were completely independent. We were all part-timers with no opportunity to meet and discuss a unified method. Each artist, therefore, was free to develop his own course in the light of his own experience as a painter or sculptor. And this was precisely my position also at the time.

To begin with, therefore, I knew nothing about the Bauhaus teaching. Being in the painting department at Camberwell I had no teaching connections with either Halliwell or Straker in the design school. Moreover, Johnstone was not interested in extending the design course to the painting school, so I never discussed the Bauhaus with him although I knew him

extremely well. Halliwell's course was called "Colour, Tone and Texture" and this was the nickname we painters gave him!

I derived an abstract foundation course, not from the Bauhaus or from Johnstone and Halliwell, but from experiments carried out in my own studio.²⁷

Pasmore's scrutiny of Paul Klee's 'Pedagogical Sketchbook' in 1953 occurs some years after his move to abstraction and after some of his more radical teaching initiatives. Paul Klee and the Bauhaus served to endorse what he was already doing. Most of the artists concerned with the basic design courses were, as Pasmore suggests, developing their teaching in the light of their own experiences as artists.

In his paper on the 'Pedagogical Sketchbook' symposium, Reyner Banham remarks on the extraordinary influence that Paul Klee was having on a whole generation of artists. A large memorial exhibition of Klee's work had been held in Paris in 1948 and this had been seen by Eduardo Paolozzi and William Turnbull who had both settled in Paris after their time at the Slade. The botanical imagery of Klee can clearly be seen to have influenced Paolozzi's early work, such as 'Growth' 1949, 'Forms on a Bow' 1949, and 'Paris Bird' 1948-49. William Turnbull and Paolozzi held a joint exhibition at the Hanover Gallery in 1950 in which Turnbull's sculpture, consisting mainly of work executed in Paris, was characterised by simple stick forms with slightly bulbous ends rising from flat planes. His paintings consisted of clusters of elementary lines and symbols. Much of this work was influenced by Giacometti, but the growing, organic, moving and playful nature of much of the material is influenced by Klee. The simple stick like forms and the spatial marking, is not dissimilar to those minimal elements which Richard Hamilton used to mark and articulate the picture surface of paintings such as 'Induction Study' and 'Chromatic Spiral' of 1950. Animal and plant forms were the starting points for both artists at this time.²⁸ Eduardo Paolozzi, William Turnbull and

Richard Hamilton all attended the Slade at around the same time, all taught at the Central School, were members of the Independent Group and were close friends and collaborators.

Richard Hamilton was appointed to a part-time post in the Department of Industrial Design at the Central School in 1952 and in 1953 he was appointed lecturer in the Design School at the University of Newcastle-on-Tyne. While holding his position in the Design School, Hamilton also did some part-time teaching in Interior Design at the Royal College of Art. Although Hamilton has achieved an international reputation as a painter, none of his teaching appointments were in painting, not even when he took over as director of foundation course studies at Newcastle in 1962. As a lecturer in Design, it was Hamilton's duty to be familiar with the Bauhaus, and of all the people concerned with basic design, Hamilton freely admits to knowledge of the Bauhaus and acknowledges its influence. When asked by Peter Sinclare about general Bauhaus awareness in the teaching of basic design, Richard Hamilton suggests that it was more a question of intelligent interpretation of available Bauhaus material, rather than using the material as some textbook method.

'I don't think there was any real contact with the ideas of the Bauhaus, other than a very superficial one of this kind of thing being a good idea. But, as with most things that happened in England at around that time, a very superficial understanding of something can produce a very powerful response in the person interested.'²⁹

When I questioned Richard Hamilton on this point, he stated unlike Thubron and Pasmore, that he had read all the available Bauhaus literature and had, for a time, been very influenced by Paul Klee. His early paintings were influenced by Klee and it was 'Pedagogical

Sketchbook' which, to some measure, enabled him to shake off the very academic training he had received from the Royal Academy Schools and the Slade. He found it necessary to get back to basics, considering very fundamental questions about the nature of mark making, asking himself what the simplest mark was, and what it did when you placed it on a blank canvas. The results were pictures such as 'Induction', 'Chromatic Spiral' and 'Structure', where points, lines and crosses articulate the picture surface creating spaces and relationships which are the progressive record of a series of responses and decisions (Plate 55). As Richard Morphet perceptively points out, these early paintings eliminate style and exist as self-explanatory organisms, establishing a procedure which was to influence both his art and his teaching. The procedure being the notion that ideas define style. D'Arcy Thompson can be clearly seen in the 1951 works such as 'Particular System', 'Heteromorphism', and 'Self Portrait' where indeterminate cell structures, sea urchins, and other biological symbols occur. The playful 'Self-portrait' etching consists of his own features made up of a sea urchin, shell, bull sperm, and flat worm, presented in a form of witty symbolism reminiscent of Paul Klee's biomorphic heads (Plate 56). The bow tie in the form of the regenerating flat worm after section, echoes the arrow motif which Paul Klee adopted, and which occurs more explicitly in 'Trainsition' of 1954.

As a lecturer in the Design School, Richard Hamilton was well read and fully conversant with Bauhaus literature. Hamilton stated that in the mid-fifties he was reading Klee, Kandinsky, Schlemmer, Moholy-Nagy, and Siegfried Giedion. More importantly he was able to observe the legacy of the Bauhaus at first hand through a series of visits to the Hochschule für Gestaltung at Ulm. Hamilton had become friendly with Tomas Maldonado

after he had lectured to the Independent Group at the invitation of Reyner Banham and Lawrence Alloway. When he made several visits to Ulm he had the opportunity of discussing Bauhaus theory and he followed up these visits by writing two articles, 'U-L-M spell H.f.G' in the 'Architects Journal', July 17th 1958, and 'Ulm' in 'Design', June 1959. Ulm provided him with the opportunity of studying the development of certain Bauhaus principles, but he recognised that ultimately what was going on at Ulm, and the function of that establishment, was totally different from the Department of Fine Art at Newcastle University.

The Hochschule für Gestaltung was established by Inge Aicher-Scholl, Otl Aicher and Max Bill, and inaugurated in 1953 by Walter Gropius with the purpose of promoting Bauhaus principles. These principles which Hamilton has defined as freedom of expression, learning by doing, re-education of the senses, and practical application,³⁰ were quickly discarded when Tomas Maldonado took over from Max Bill in 1957. The freedom of expression gave way to an objective science based approach and the artist was expelled from the studio. Maldonado, an Argentinian painter, seemed to have repudiated his own fine art background and reversed the previous Bauhaus position. Practical work became a highly scientific investigation of materials and new technology, while the theoretical work consisted of mathematical and analytical methods, cybernetics, information theory, ergonomics, semiotics, topology and social history. In an article entitled 'Design Education' in 'Education of Vision', edited by Gyorgy Kepes, Maldonado draws a line between creativity and self-expression, suggesting that creativity must be based on skill and experience, without which self-expression becomes merely declamatory. On this issue of self expression Richard Hamilton had some sympathy:

'Tomas Maldonado's main thesis about Ulm's pedagogical line is that it differs from the Bauhaus in rejecting self-expression. He regards self-expression as a main tenet of the Bauhaus and a misapplication of Montessori in adult education. If Ulm had any interest for me it is this exclusion of self-expression from the education of someone who is beyond the need of it.'³¹

If Hamilton and Maldonado managed to agree on self-expression they did part company on a number of issues. Maldonado wrote an attack on the American Pop artists, or Neo-Dadaists as he preferred to call them, in a review of an exhibition held at the Sidney Janis Gallery, New York, in December 1962.³² Richard Hamilton wrote to Maldonado stating that he felt he had misinterpreted the intention of the artists concerned, and that like artists of all generations, they were simply trying to give some view and some expression of contemporary society. Maldonado came back on the attack in his essay on 'Design Education' where he appeals for social responsibility in design matters and rejects the free market consumerism argued by Richard Hamilton in his articles 'The Persuading Image' and 'Addendum'. Maldonado strikes, not only at his attitude towards design but also at the whole Pop movement.³³ There were also major differences of opinion on pedagogical matters. Richard Hamilton was considerably influenced by Ulm in its emphasis on rational procedures and in the suppression of self-expression. He approved of the thoughtful, analytical, problem solving approach and this certainly characterised Richard Hamilton's teaching at Newcastle. What he disliked about Ulm was the tendency for the solutions to problems to quickly become formulas. In his observations of first year work, geometric exercises were set according to certain prescribed rules and the outcome was, to some extent, determined by the methods. Hamilton found the teaching too rigid and too limiting, preferring the freer Bauhaus approach which Maldonado overturned. Both Richard Hamilton and Victor Pasmore, claimed that their approach was concerned with determining the beginning and not the end,

and that what they were doing was setting up a momentum which would lead to a free and indeterminate 'developing process'. Whether this was true or not is a matter of judgement. There was also one other major difference between Ulm and Newcastle, and that was that Ulm was essentially a school of design, and Newcastle a school of fine art.

The Department of Fine Art at Newcastle University was divided between the Painting, Sculpture and Design Departments. The reputation of the department was essentially in fine art and the small design department was limited to fabric printing and stained glass. It could be argued that stained glass and fabric printing stand on the more 'fine art' oriented branch of design, in so far that they are far less constrained by matters of function, and provide plenty of scope for a form of self-expression. The Newcastle operation was vastly different from Leeds College of Art where the foundation course was designed as a grounding for all branches of art and design, from furniture to architecture. Each basic design course had to be adapted to the needs of each institution. The Bauhaus had been seen as a rough model and in some respects did indicate a way forward, but just as Maldonado had felt the necessity to question Bauhaus pedagogy, so many had to question the relevance of the Bauhaus to the changed circumstances of design and technology in the nineteen-fifties.

In 1959 an exhibition called the 'Developing Process', consisting of the foundation course work of Pasmore, Hamilton, Thubron and Hudson was held at the ICA. In his introduction, Roger Coleman discusses the changed situation in art education. Coleman writes of the great achievement of the Bauhaus in creating some kind of integration of the arts and

establishing an integrated mode of teaching based on non-academic methods. The Bauhaus represented the culmination of a movement extending from William Morris towards the abolition of the old divide which separated fine and applied art. However, Coleman argues that the complexity of modern design prevents a unified approach and that unity, or common ground can only be achieved at the lower rungs of the ladder.

'The devaluation of a concept of a unified visual art is the result of many complicated factors which constitute the background to the recent history of visual art generally and also of criticism. Briefly they are these. Firstly the aesthetic of the unified art ran down into a sterile academicism of 'pure form' which became itself guilty of class distinctions previously imputed to fine art. Secondly, from the beginning of the war changes have been taking place in technology and in manufacturing processes to such an extent that the 'truth to material' strategy ceased to be the clear example it once was. Coupled with this have been radical changes in design methods themselves. Finally, our conception of culture as a whole is undergoing changes that are affecting substantially our interpretations of such things as 'art', 'design', 'taste' and so on. On a more particular level, industrial design no longer needs the aesthetic support of the fine arts. For instance, the logical methods of ergonomics are increasing the percentage of non-aesthetic factors in design by defining 'functional' in terms of the physiological and psychological requirements of consumers and users. Thus it becomes difficult to interpret design as an art in the sense that it was interpreted before the war. In addition, communications studies (in the widest sense) have been responsible for the redefinition of the fine arts in general. We no longer think of painting, for example, as the property of a cultural elite, but as a means of visual communication with its own particular characteristics existing in a communications continuum.

Today, then, design and fine art are regarded as separate but related activities. But as long as they continue to be taught together in art schools (there are suggestions that they should be separated) some form of teaching must exist, certainly in the initial stages, that is common to both and which will be the foundations of both without prejudicing the late developments of either.'³⁴

Roger Coleman's appraisal of the Bauhaus and its relevance to the state of basic design in the nineteen-fifties concludes this survey of the impact of the Bauhaus on art educational thinking. For him, the greater

sophistication in design technology and manufacturing renders much Bauhaus thinking obsolete. Nevertheless, the basic course concept held good and was still relevant to current need.

If the Bauhaus was obsolete, it nevertheless did serve its purpose in indicating a non-academic way forward. The impact of the Bauhaus on basic design thinking was paradoxical. In one sense, the implementation of basic design is unthinkable without the example furnished by the Bauhaus. On the other hand it is quite clear that most of the people concerned with initiating basic design courses only had a vague acquaintance with Bauhaus pedagogy. When the pedagogic writings of Klee and Kandinsky became available they were certainly not the prescriptive kinds of documents which many may have expected. Perhaps Norbert Lynton and Richard Hamilton give the best diagnosis of the situation when they stated that the Bauhaus represented a vague and distant symbol, of which little knowledge was required in order to provoke a powerful response. Quentin Bell and H S Williamson were probably wrong in demanding a clear and unambiguous textbook from Paul Klee. Klee's lack of clarity and 'unintelligibility' was probably his very strength. His 'Sketchbook' was indeed, a sketch rather than a blueprint, and like Kandinsky, his writing has a metaphysical aspect which appeals to the imagination. A prescriptive textbook would probably have had little impact, but Klee and Kandinsky had the power to indicate a plane of thought which was capable of capturing the imaginations of a number of exceptionally creative artists. The Bauhaus indicated a possible structure and a vague way forward, but the content of basic design and the activities which were generated, owe more to a broader cultural front and have little to do with the Bauhaus. To a greater or lesser extent the content of basic

design courses reflects the issues which confronted the post-war generation of artists and their own creative concerns. In order to understand the basic course evolved by Victor Pasmore and Richard Hamilton, it is necessary to investigate the context and creative issues which made it possible.

Victor Pasmore : The Natural World and Abstraction

The foundation course evolved by Victor Pasmore and Richard Hamilton reflects the creative concerns of both artists and the wider issues confronting post-war modernism. As artists and personalities, Victor Pasmore and Richard Hamilton complemented each other, and it is an irony that both were advancing the frontiers of opposing artistic positions. Pasmore, being a convert to abstraction, was pursuing his notion of abstract modernism with a missionary zeal, while Hamilton, having briefly explored one form of abstract notation, was promoting a new form of figuration. Pasmore was exploring the world of abstraction, rejecting nature as a source, and arguing an uncompromising case for art's independence of nature. Richard Hamilton, on the other hand, was essentially an empiricist, penetrating the natural world with the help of the naturalist D'Arcy Thompson, investigating our perception of that world through the perceptual psychology of J J Gibson, and exploring the man-made world of machine technology, as well as looking at the wider issues of contemporary life and culture. Pasmore was drawing and composing from within, whereas Hamilton was looking outwards and scanning a wide horizon. This and the next chapter will explore these polarities.

In 1946 when Clive Bell wrote a short monograph on Victor Pasmore for the Penguin Modern Painters series, Pasmore had secured a national reputation as one of our leading painters working in the Post-Impressionist manner. His paintings of the Thames, Chiswick and Hammersmith, executed during the nineteen-forties, are distinguished by their poetic light and lyricism which established Pasmore firmly in the tradition of Turner and

Whistler (Plate 57). Whistler was a strong influence on Pasmore, but Clive Bell, deprecating Whistler as a superficial decorator, describes his influence on Pasmore as 'unwholesome'.¹ Both Pasmore and Whistler painted the Thames and shared a taste for Japanese art, and there is no doubt that Whistler exerted some stylistic influence on Pasmore. However, the long term influence of Whistler had more to do with aesthetic theory than style. Victor Pasmore had read Whistler's 'Ten O'Clock Lecture' and they both shared a view of art and nature, in which art was regarded as essentially man-made and independent of nature.

Whistler had challenged those aspects of Ruskinian and Pre-Raphaelite naturalism, questioning very forcefully Ruskin's famous dictum that the artist should follow nature implicitly, 'selecting nothing, rejecting nothing believing all things to be right and good and rejoicing in the truth'.² In his 'Ten O'Clock Lecture', Whistler states a contrary position:

'Nature contains the elements, in colour and form, of all pictures, as the keyboard contains the notes of all music.

But the artist is born to pick and choose, and group with science, those elements, that the result may be beautiful - as the musician gathers his notes, and forms his chords, until he bring forth from chaos glorious harmony.

To say to the painter that nature should be taken as she is, is to say to the player, that he may sit at the piano.

That Nature is always right, is an assertion, artistically, as untrue, as it is one whose truth is universally taken for granted. Nature is rarely right, to such an extent even, that it might almost be said that Nature is usually wrong: that is to say, the condition of things that shall bring forth about the perfection of harmony worthy of a picture is rare, and not common at all.'³

Whistler argued that the artist must be highly selective, that art is essentially artificial, and in his other writings insisted that art

should be apprehended on its visual merits alone and not confused with morality, education, literature, drama or history.⁴

In his attempt to draw the Victorian public away from its concept of painting as a form of anecdote, narrative and literature, Whistler, like Kandinsky, promoted the link between painting and music. For him, art should be apprehended directly and sensually on its own visual terms. Our expectations of a painting should operate on the same level as our expectation of music which is understood in its terms of musical harmony and not confused with associations foreign to it. This highly sensual view of art was most eloquently expressed by Walter Pater in his essay on the School of Giorgione, where he makes the famous statement that, 'All art constantly aspires towards the condition of music.'⁵ Whistler reinforces the association between painting and music through the nomenclature of his work, calling his paintings symphonies, harmonies, nocturnes, arrangements and variations. In doing so, Whistler, unlike Kandinsky was trying to reorientate Victorian ways of seeing rather than putting forward any serious theory of synaesthesia.

There was nothing totally original about Whistler's ideas which stem from Théophile Gautier and Charles Baudelaire. Gautier had written a poem 'Symphonie en blanc majeur' and Baudelaire in his essay on Eugène Delacroix describes Nature as a dictionary.⁶ Also in his essay 'In Praise of Make-Up' Baudelaire argues that art is essentially artificial, and that like the woman who makes up her face, the artist improves on nature. Baudelaire also reverses those aspects of Ruskinian notions of nature as the fount of all goodness and truth. He argues that evil and bestiality are of the natural order, and goodness, beauty and

nobility, have to be cultivated by reason and calculation. Art therefore requires man's intervention in the natural order of things and for this reason, art is essentially man-made and artificial.⁷ Baudelaire, Whistler, and later, Oscar Wilde, became spokesman for a generation which disparaged nature. Oscar Wilde studiously observed a stance of distaste towards natural phenomena, claiming that nature caught up with the artist, and on his celebrated tour of America, refused to be impressed by the more spectacular aspects of the American landscape.⁸

To some degree Victor Pasmore inherited these attitudes and occasionally enjoyed disparaging nature in order to shake up certain attitudes and assumptions. One anecdotal piece of evidence comes from John Wood who described the opening of an exhibition of the children's work at the Joseph Rowntree School at Earswick, York, to mark the conclusion of Harry Thubron's three month period there. One of the school governors approached Victor Pasmore expressing his distaste for modern art stating that, 'I really believe that the only inspiration for art should be nature; after all, it is nature that is all around us.' Victor Pasmore's response was, 'Oh nature! I don't quite know what you mean by nature. I've come through the country this morning with John Wood. I haven't seen much nature. I've seen man-made countryside but I don't know what you mean by nature.'⁹ In recent conversation with Victor Pasmore, he stated quite firmly that his art had little to do with nature and when I challenged him that the Mediterranean environment had, by a process of osmosis, influenced the colour of his recent work, he insisted that the particular Mediterranean blue I had referred to, was discovered in an ironmongers shop, and he had taken his cue from his palette and not from nature.¹⁰

In the same conversation Victor Pasmore described the trichotomy that exists between the artist, nature and the canvas. There is the object to be represented, the artist, and the canvas; but what goes on the canvas, while signifying the object, is quite different from, self-sufficient, and independent of the object. The artist acting as an intermediary between the motif and the canvas, brings all his knowledge, preconceptions, technique, selectivity, personality and emotions to bear, which accounts for the difference between the object and the canvas. The reconciliation between the autonomy of the canvas, and its internal structure of marks, lines and colours, with the natural world it represents, created something of an impasse for Victor Pasmore. Pasmore felt that naturalistic painting had always walked a tightrope balancing formal independence with a naturalistic content. Cézanne had held the balance, and it was through reading Cézanne's letters that Pasmore was able to clarify his own thoughts on the matter and eventually abandon nature and 'chuck out the object'.

Cézanne was not given to theorising in art, but in his late correspondence with Emile Bèrnard and Joachim Gasquet he is drawn into a brief theoretical exchange. Unlike Pasmore, he firmly states that art is rooted in the study of nature and constantly drives this point home with Bernard whom he considered to be seduced by too much theory and too much study of the Old Masters:

'The Louvre is a good book to consult but it must be only an intermediary. The real and immense study to be undertaken is the manifold picture of nature.'¹¹

Cézanne constantly states that the only progress for an artist is through sustained contact with the study of nature. However, nature is not to be slavishly copied and what the painter puts on the canvas is a

reconstruction rather than a copy.

'a painter, by means of drawing and colour, gives concrete form to his sensations and perceptions. One is neither too scrupulous nor too sincere nor too submissive to nature; but one is more or less master of one's model, and above all, the means of expression. Get to the heart of what is before you and continue to express yourself as logically as possible.'¹²

The restructuring of nature on the canvas is explained as a process of classifying, and dovetailing the planes according to their colour values. His famous advice to Bernard to 'treat nature by means of the sphere, the cylinder and the cone',¹³ was his means of persuading a more rigorous, articulate and precise structuring of form in depth. One key statement regarding the relationship of art with nature occurs in a letter to Gasquet:

'Art is a harmony which runs parallel with nature - what is one to think of those imbeciles who say that the artist is always inferior to nature?'¹⁴

The independence of art from nature is stated by Cezanne in a passage which Victor Pasmore quotes in his article, 'What is Abstract Art?' published in the 'Sunday Times' magazine section February 5th, 1961:

'The artist makes a concrete object and gives it individuality. He creates a harmony parallel to that of nature and develops it according to a new and original logic.'¹⁵

In the same article, Pasmore also quotes Van Gogh whose letters had also been influential reading for Pasmore.

'Colour expresses something in itself. To start with one's palette is quite different from following nature mechanically.'¹⁶

Pasmore frequently described his pedagogic method, beginning with the concrete realities of the elements at the artist's disposal, as a process of 'starting with the palette', or 'starting with the paint box'.

Pasmore, having spent many years investigating objective naturalism in

the Euston Road manner, sought a corresponding objective basis for abstraction. If Kandinsky's pedagogical writing and his understanding of Gestalt psychology served to underpin his search for a theoretical basis of abstraction, so did Pasmore's pedagogy strengthen his search for an objective basis for abstraction. To begin with, Pasmore looked to Renaissance art where he felt that the beginning of formal independence from nature was established by the use of mathematical systems of composition. At this time, a number of books became very influential. D'Arcy Wentworth Thompson's 'On Growth and Form', was essentially a mathematical analysis of growth, and his studies of logarithmic spirals and gnomonic growth, influenced the thinking of Matila Ghyka, whose book 'The Geometry of Art and Life' was widely read by Pasmore and a number of artists. Other books dealing with harmonious systems of proportion included Jay Hambridge's 'Dynamic Symmetry of Composition', 1948, J W Power's 'Les Elements de la Construction Picturale', 1933, Worringer's 'Empathy and Abstraction', and Le Corbusier's 'The Modulor'. Ghyka's book gives a thorough analysis of proportion in space and time, the Golden Section, the Fibonacci series, geometrical shapes on the plane and in space, the geometry of growth, geometrical symbols and mystic numbers, Greek and Gothic canons of proportion, and symphonic composition applied to music, art and architecture. Like much literature that was influential in the post-war period, Ghyka's book seeks a common ground which links the mathematician, the naturalist, the physical scientist, the artist, architect and musician. The book also became the starting point for some of Victor Pasmore's early teaching.

Morris Kestelman recalls Victor Pasmore at the Central School in 1949 to 1950 carrying around a copy of Ghyka's book, and Terry Frost described

ERATA

The following should be read as paragraph two on page 106.

Terry Frost had been one of a number of ex-servicemen who had enrolled at the Camberwell School of Art, and had for a time followed one of the earliest basic design courses taught by Albert Halliwell and Edwin Straker. He had been introduced to painting by Adrian Heath while they were both in prisoner of war camp, Stalag 383, Bavaria in 1943. Adrian Heath first visited Cornwall in 1938 where he studied under Stanhope Forbes in Newlyn, and it was Heath who persuaded Terry Frost to settle at St Ives in 1946 where he studied at Leonard Fuller's School of Art before going to Camberwell in 1947. Terry Frost described how a number of his artist friends had 'converted' to abstraction, partly under the influence of Pasmore. Kenneth Martin, who was teaching at Camberwell, was introduced to Power's book on the elements of pictorial construction by Pasmore, and it was Martin who encouraged and explained the principles of abstraction to Terry Frost. Frost was spending some time in London with Adrian Heath, who had begun painting abstract pictures in 1949, and whose studio at 22 Fitzroy Street became an important focal point for abstract art, and the St Ives artists in particular. At the time, Adrian Heath was preparing his book 'Abstract Art: its Origins and Meaning', and Anthony Hill, another of Pasmore's students, was helping with the documentation. Terry Frost described the breakfast room at Fitzroy Street, festooned with illustrations which Anthony Hill had collected and the constant discussion on abstract art. Anthony Hill was to pursue the mathematical dimension of construction far more rigorously than most of his contemporaries, holding down fellowships in mathematics at various universities.¹⁹

how he, and a number of other artists were introduced, by Pasmore, to a number of books on the Golden Section:¹⁷

'I used to go up and see Victor at Blackheath, and he used to come to Battersea to see me. He was doing those early Cubist collages and I was very interested in that. He was keen on the Golden Section and he showed me Le Corbusier's book and all the different books on these things which I tried reading. I learned a lot from that period through Victor giving me advice on what to read. I had been down here (Cornwall) and I used to get letters from Nicholson and Lanyon, and I didn't understand what they were on about. They were trying to teach me about abstract art and I used to have to show the letters to Victor so that he could explain what they were about. That's how I learned through the help of other people.'¹⁸

It was a period in which there was a pioneering consciousness in the field of abstraction among a number of artists in Britain and it is noteworthy how they assisted each other and pooled ideas.

Terry Frost had made the acquaintance of Peter Lanyon and Ben Nicholson before going to Camberwell, and as previously stated, was corresponding with them and involving Victor Pasmore in explaining the nature of abstract art. Pasmore was interested in Ben Nicholson who remained a key figure in British abstraction, and Frost introduced Pasmore to Nicholson in 1949. Ben Nicholson became the focus of attention for many of this younger generation of abstract artists, because he remained the most senior figure in the world of abstract art, in spite of the fact that he was beginning to relax the austere abstraction of the thirties and move back to a form of semi-figuration.²⁰ Victor Pasmore, who already knew Patrick Heron, rented Heron's flat in St Ives for the summer of 1950, and produced a number of drawings of Porthmeor beach. The spiral formation of the waves breaking on the beach and the interlocking forms of the rocks prefigure the motifs in 'The Snowstorm: Spiral Motif in Black and White', 1951, and 'The Coast of the Inland Sea' (Plate 58), 1950. The

spiral form occurs also in the tile mural 'The Waterfall' designed for the Regetta Restaurant for the Festival of Britain. Another mural project which shows the influence of Ben Nicholson is the more austere mural relief for the Kingston Bus Depot which recalls Nicholson's reliefs of the nineteen-thirties. Pasmore and Nicholson became firm friends, and Pasmore joined the Penwith Society where he remained a member until 1954.

'The Coast of the Inland Sea' was an important transitional work emanating from his St Ives experience and it is the subject of one statement by Pasmore made in 1954 when he had begun to crystalise his ideas concerning abstraction and what he called 'independent' art.

'The coast of the inland sea is, in this picture, a sea coast of subconscious experience. It does not refer to any coast known or seen by the artist. The word inland here denotes extreme subjectivity.

The picture was one of a limited series of landscape themes developed by means of a free construction of pure form elements, either the spiral line as in this case, or the square as in the 'Eclipse'. By developing and arranging these forms in certain ways and by emphasising their emotive qualities, an image finally formed suggesting landscape forms. In each case the title was suggested by the completed picture, in no instance was the picture a representation of an existing or preconceived image.'²¹

The spiral motif did not originate at Porthmeor beach, as Pasmore had been engaged on a major work, 'Spiral Motif: The Wave' in 1949, and this idea had previously been explored in 'The Wave', 1939-1944, under the influence of Courbet. However, a number of paintings exploring the spiral form were executed between 1949 and 1951, but the importance of this motif for Pasmore was its concrete reality independent of nature. It was a form which Pasmore could manipulate like a musical motif, as he explains in the following passage from 'The Artist Speaks', published in 'Art News and Review', 24th February 1951.

'What I have done is not the process of abstraction from nature, but a method of constructing from within. I have tried to compose as music is composed, with formal elements which, in themselves have no descriptive qualities at all. The spiral movement which can be discerned throughout nature, in many different forms, is reduced to its single common denomination - the simple spiral. Similarly other characteristic shapes are signified in the same way; so we get the rectangle, the triangle, the circle and other formal elements. Having lost their particular identity, these elements are no longer abstractions in the same sense as the drawing of a human head, an animal or tree. Selecting as a theme or subject, a particular combination of two or more elements, I begin to draw. As these elements combine with each other on the canvas, so are emotions and ideas evoked - the act of drawing a spiral in a variety of ways will evoke emotions similar to those associated with the spiral movements of nature. When this takes place, I proceed to select and, by organisation and analogy, unite what I have done in a single form . . . that ancient maxim, 'art imitates nature', must no longer be construed in the superficial sense which the schools and the academies have imposed on us, but in its deeper meaning - art imitates nature in the manner of her operation . . . painting, like music, is not an imitation of nature . . . like nature, painting is solid and made up of parts; the same eye that looks at it, looks at nature; the same mental and the natural scene. There cannot be one law for nature and another for art.'²²

This statement of 1951 was made in a year which was critical to the modern movement in Britain. The spirit of innovation and renewal, which was exemplified by the Festival of Britain, and which expressed the mood of post-war Britain, was also reflected in a number of exhibitions associated with, and complementary to the Festival. The outlook was essentially modern, and the Festival brought about the opportunity for collaboration between artists, architects and designers, which approximated something like a Bauhaus vision of unity. There were major commissions for established artists like Barbara Hepworth, and Ben Nicholson and Victor Pasmore were invited to design murals and mural scale work for the Regatta and Riverside restaurants. Younger artists, like Eduardo Paolozzi, received commissions and Richard Hamilton mounted his 'Growth and Form' exhibition at the ICA. The newly created Arts

Council promoted the '60 Paintings for 51' exhibition which commissioned sixty artists to submit large scale paintings. Victor Pasmore exhibited his celebrated 'Snowstorm: Spiral Motif in Black and White', and other artists included were Ben Nicholson, Patrick Heron, Peter Lanyon and Brian Wynter. One important exhibition which brought together all those artists who were in the vanguard of post-war British abstraction, and represented the first exhibition solely devoted to abstract art, was 'Abstract Art' at the AIA Gallery, and 'British Abstract Art' at Gimpil Fils in 1951. The artists represented included Kenneth and Mary Martin, Robert Adams, Adrian Heath, Anthony Hill, Peter Lanyon and Terry Frost. One of the first collective statements on British abstract art, 'Broadsheet No 1 devoted to abstract art', was published at the time of the exhibition.

The group continued to exhibit together in Heath's studio at 22 Fitzroy Square, at the Building Centre in 1954, and an important exhibition 'Nine Abstract Artists' was held at the Redfern Gallery in 1955. This exhibition consisted of the work of Robert Adams, Terry Frost, Adrian Heath, Anthony Hill, Roger Hilton, Kenneth Martin, Mary Martin, Victor Pasmore and William Scott. A series of statements by the artists were published in a book 'Nine Abstract Artists', by Lawrence Alloway.²³ In his introduction, Lawrence Alloway states that none of the pre-war British abstractionists was making any significant contribution to post-war abstraction. He accuses many, like Piper, of rescinding abstraction and turning to neo-Romanticism, while figures like Hepworth and Nicholson are seen to have abandoned the rigour of their thirties purity. According to Alloway, those who were spearheading abstraction in the fifties were the 'converts' to abstraction with

Pasmore in the lead as the 'culture hero'. Pasmore's conversion was a great symbolic act for this post-war generation and was described by Herbert Read as the 'most revolutionary event in post-war British art'. Pasmore's first non figurative works occur in 1947/48 and his first constructions appear in 1951. Kenneth Martin produced his first abstracts in 1949 and constructions in 1951. Adrian Heath, Mary Martin and Anthony Hill all changed to abstraction in 1950. Frost, Hilton, and Scott arrived at abstraction by a different route and their painterly abstraction differs essentially from the 'constructivist' base of the work of Pasmore, Hill, Heath and the Martins, which has its intellectual roots in the pre-war 'Circle' group.

In 1951, the ideas of the 'constructivist' group are sharpened by contact with the American artist and theorist Charles Biederman whose book 'Art as the Evolution of Visual Knowledge'²⁴ was to have a decisive influence on all the artists concerned, and on Victor Pasmore in particular. For this reason it is essential to summarise some of the concluding chapters. On its publication in 1948, Charles Biederman sent copies of his book to a number of British scientists, including Kathleen Lonsdale who had assisted Richard Hamilton in his 'Growth and Form' exhibition. The book addresses itself to scientists as well as artists and makes an important contribution towards that post-war search, among many intellectuals, for a common ground between the arts and sciences. The book traces the history of art from Neolithic times to the present day, and puts forward an argument that the most important advances in art, and the most significant contributions, have come from those artists who have related their work to nature, rather than the world of fantasy and imagination. Those artists who have given their greatest attention to nature, like

Constable, Turner, Courbet, Monet and Cézanne, have not only advanced the frontiers of art, but have created in terms of light, colour and space, autonomous forms which are analogous with nature. On the face of it, Biederman's insistence that the artist must be firmly rooted in nature, may appear to contradict Victor Pasmore's stance of turning away from nature, and certainly the whole relationship of the artist towards nature became a contentious issue for them. However, Biederman's essentially evolutionary view of art and his insistence on arts autonomy of form, the ultimate rejection of mimesis, and his belief in a new art and a new order, do give support to Pasmore's own position. Biederman argues that those artists who have penetrated nature most profoundly, have not copied nature but restructured it.

Biederman regarded Monet as a key figure because his work represented a significant break with naturalism. Monet did not slavishly copy nature but analysed colour in nature and restructured it, emulating nature's methods rather than appearances. Monet did not imitate nature but set up structural analogies in terms of colour, paint and pigment, creating not illusions, but concrete realities.²⁵ Biederman challenges the conventional interpretation of Impressionism as a form of naturalism seeking truth to nature. He claims that in Impressionism, the 'nature object' did not dictate the terms, but, on the contrary, nature is subordinated, in the quest to search out and liberate light and colour factors. He finds evidence for this in Monet's Rouen Cathedral series where the motif provided him with the opportunity of freely inventing colour experiences which were correspondences, rather than descriptions of the object. The serial paintings of Monet, such as the 'Haystacks' and 'Rouen Cathedral', were of particular interest to Biederman. In these paintings Monet

painted numerous studies of one object under different light conditions recording those 'fugitive effects of nature', and recreating them on the canvas. Extending the idea of a concrete reality, Biederman in his own work, takes up Monet's concern with instantaneous and ephemeral effects of light by creating relief structures which exploit and manipulate the actual play of light, thus activating those light conditions which fascinated Monet (Plates 59 and 60). Later, Pasmore in his use of transparent materials, was to embody the same feeling of light and lyricism in his constructions which previously had characterised his paintings of the Thames at Chiswick.

Biederman drives home his argument, which is central to his book, that the artist should not copy nature's effects but follow her structural processes and procedures. Monet's achievement was to go beyond nature's appearance and creatively utilise nature's colour building methods.

'In order to achieve their objective the artists would not permit nature to dictate, as in the past; instead they studied the structure of nature's colour demonstrations and by using the method rather than the results of nature they were able to utilize full paint-pigment brilliance. Hence the artist achieved brilliant displays of colour, as does nature, but colour peculiarly possible to the potentialities of paint. The interest of the Impressionists in the colour-operations of nature was like that of a student who wanted to learn the building method from the master, not for the purposes of copying his works but for the purpose of creating something new with his method. They had a desire to learn from nature and then convert this knowledge to objectives desired by man.²⁶

Biederman argues that, contrary to popular belief, Impressionism was neither naturalistic nor scientific. It represented the first rejection of a macroscopic, imitative view of nature, and replaced this with a perception of nature's structural reality as a 'first order experience'.

According to Biederman, Cézanne went further than Monet, breaking with Impressionism and restructuring nature in terms of plane relationships. For Cézanne, construction was always at the heart of the process. In 1904, he wrote:

'what you must strive to attain is a good method of construction. Drawing is merely the outline of what you see . . . Michelangelo is a constructor and Raphael an artist who, great as he is, is always limited by the model.'²⁷

Cézanne admires Michelangelo who is not prepared to take nature as she is but is willing to reconstruct reality. Likewise, Biederman argues that it was natural for Cézanne to feel some sense of kinship with Poussin whose classical landscapes represent an inventive capacity to reorganise the colours and forms of landscape. It was not so much the idealisation of Poussin's landscapes which appealed to Cézanne, but the method of free invention. According to Biederman, Cézanne was not subject to the same constraints as the old masters, who were bound to a more naturalistic model, but he was free to compose more freely with the elements presented by nature. As Biederman states: 'Previously the appearance of nature was accepted as the "master" of man's art, but Cézanne was striving to become the master of the appearances of a man-created art.' Perhaps Cézanne puts the case more succinctly when he states: 'I have not tried to reproduce nature: I have represented it'.²⁸

While acknowledging the contributions of Gauguin and Van Gogh towards Post-Impressionist formalism, Biederman accuses them of allowing their art to run into literary channels, and therefore the structural element was of less importance to them, than to Cézanne. Biederman quotes one of Cézanne's letters to Bernard: 'avoid the literary spirit which so often leads the painter astray'.³¹

Cézanne's central preoccupation with pictorial structure is highlighted by Biederman in reference to Cézanne's celebrated letter to Bernard in which he states: 'you must see in nature the cylinder, the sphere, the cone, all put into perspective, so that every side of an object, of a plane, recedes to a central point.'²⁹ Biederman interprets this statement in the light of Cézanne's own paintings. Cézanne's statement is well known but not well understood, and is rarely quoted in full. Biederman explains that the first part of the statement can be taken more at face value than the second half. The artist can simplify and reduce the forms of nature to a basic geometry, but the first statement is qualified by the more ambiguous assertion that these forms must be rendered in perspective. Was Cézanne articulating conventional perspective theory? Biederman argues that Cézanne was not. He suggests that Cézanne was implying that each selected object and plane obeyed its own rules of perspective, rather than all forms obeying one central rule. Where Cézanne states: every side of an object, of a plane . . .' he implies a highly selective view, suggesting that not all objects, or all planes conform to the same rule. Biederman argues that his analysis of Cézanne's meaning is confirmed by Cézanne's own paintings where several viewpoints can be seen operating in the same painting. He concludes by saying that Cézanne composed freely with variable perspective, just as he freely manipulated the other elements of nature's keyboard.³⁰

Biederman particularly admired Cézanne's watercolours and the way in which he used blank space and interval. In his analysis of space and plane relationships, Cézanne managed to activate blank spaces and empty voids, bringing them together in a positive and tangible relationship with the other elements in the pictorial architecture. This manipulation

of the void was later to be used to great effect by Victor Pasmore who translates these elements into concrete terms by his use of transparent perspex. Cezanne's insistence that paintings should be self-definitive, logically led him to stress the surface of the picture plane in his late works, where traditional perspective dissolves and the angular brushmarks, and the surface autonomy of those marks, interpenetrating and interlocking in plane relationships, constantly assert activity in the shallow space of the surface rather than in-depth perspective. As Biederman states: 'Cezanne was able to accomplish more satisfactory regulations of the eternal conflict between a round world and the flat surface on which it is worked.'³¹ In many ways the paintings of Cezanne, in their spatial ambiguities, present a suitable ground plan for logical development into constructivism.

Cubism, for Biederman, represents the next major progressive step building on the achievement of Cezanne. Fauvism is disposed of as merely 'polishing up the discoveries of their predecessors, Van Gogh and Gauguin, and in the end had nothing new to offer.' Biederman presents his own analysis of the evolution of Cubism. To begin with (1908-1909), nature's forms are simplified into 'geometricised' and 'angularised' planes and shapes, but retain the closed contour. The next state is where the contours break open and the demarcation between figure and ground gradually becomes more ambiguous. In Picasso's 'Portrait of Kahnweiler' there is no defining contour and no clear distinction between figure and ground. Biederman analyses from the evidence of the pictures, showing how Picasso is increasingly reluctant to differentiate his treatment in rendering figure and background. This fusion of object with space is elsewhere aptly described by Clement Greenberg.

'The Old Masters pursued sculptural effects not only because sculpture still taught them lessons in realism, but also because the post-medieval view of the world ratified the common-sense notion of space as free and open, and of objects as islands in this free and open space. What has insinuated itself in modernist art is the opposed notion of space as a continuum which objects inflect but do not interrupt, and of objects as being constituted in turn by the inflection of space. Space as an uninterrupted continuum that connects instead of separating things, is something far more intelligible to sight than touch (whence another reason for the exclusive emphasis on the visual). But space as that which joins instead of separating also means space as a total object, and it is this total object that the abstract painting, with its more or less impermeable surface, "portrays".³²

With the transitional phase between analytical and synthetic Cubism, Biederman describes how the flat plane of the canvas is reasserted by overlapping planes, in which the right angle dominates the diagonal (which implies depth), and the shallow space of the earlier works, gives way to surface linearity. Like the very earliest Cubist works, the shapes are closed, but they function in an entirely different way. The early works still related to the three-dimensional closed forms of nature, whereas these later transitional works, represent a total reconstruction. Nature's forms are first opened out, then flattened, and then freely disposed over the flat canvas surface asserting the two-dimensional nature of the picture plane. As Biederman points out, Cubism marks a further advance on the road towards an art in which the recorded forms of nature give way to the freely invented shapes determined by man. However, Biederman accuses the Cubists of failing to see the logic of their progress and withdrawing from the brink in the last phase of synthetic Cubism where 'nature forms' are reintroduced. This is seen by Biederman as a serious regression.

The introduction in synthetic Cubism of drawn, textured and collaged

references to the 'nature object', are regarded by Biederman as a withdrawal into the world of fantasy, and a failure to recognise the structural implications of their earlier discoveries. The manipulation and juxtaposition of recognisable but distorted elements, did not solve the dichotomies of representation and invention, or three-dimensional illusionism on a two-dimensional surface. In Biederman's writing there is frequent reference to the 'old art content' and the 'new art content'. The 'nature object' and 'nature's appearance' belong to the old art, whereas the 'new art' embraced a man-invented structural reality which is expressed in more abstract terms. The Cubists reached a point where they virtually eliminated the 'nature object' but then failed to make the leap towards a total structurally based art and re-embraced the world of appearances. The fact that the Cubist failed to see the logical implications of their discoveries, is put down, by Biederman to their intuitive mode of working. Biederman frequently asserts that all the innovations and advances under discussion were made unconsciously, and that few artists ever consciously set out a programme of work with clearly defined ends. However, Biederman diagnoses intuition, emotion, and instinct, as the cause of Cubism's regression, and suggests the new conditions of art will require a non-intuitive mode of working.

I have stated that the new 'man-invented structural reality' expresses itself in more abstract terms, but the term 'abstract', which I use in a relatively loose way, comes in for some analysis by Biederman. It is a term which needs some qualification, as Pasmore himself has reservations about its use, preferring to use the phrase 'independent art' to describe and underline the fact that what he produces is independent from nature. As Biederman points out, all art abstracts to some degree and each kind

of art abstracts differently. According to Biederman, the 'old art' abstracts from the macroscopic level of reality, the 'new art' abstracts from the structural process of reality (the transitional period is marked by the period from Impressionism to Cubism). It was in the post-Cubist period of art that the new structural process level of abstraction was to emerge. All representational art, by the mere selective process, involves a form of abstraction, and even non-representational art abstracts in so far that its forms and colours partake of the natural world. In this respect Biederman locates a contentious issue which divides his thinking from that of Pasmore, and has some ramifications in Pasmore's pedagogy. Biederman states that non-representational art is not independent of nature because it employs the forms and colours of nature and as he says:

'to deny that such art abstracts from reality, one would also have to prove that the artist came upon the notion of form, colour and the like without previous recourse to nature. So it becomes just as impossible to exclude all the characteristics and qualities of nature as it is to include all of them into a work of art.'³⁸

Art may separate itself from certain aspects of nature but not from nature as such. All art abstracts, but it abstracts from two different levels of nature's reality; what Biederman calls the macroscopic level and the structural process level.

This distinction of the levels of reality is something which Biederman feels is lacking in the critical writings of those artists and critics like Alfred Barr, Le Corbusier, Kandinsky, and Lipchitz, who frequently use the term 'concrete' as an alternative to 'abstract' in describing their art. The term 'concrete' suggests the opposite to 'abstract' in so far that it asserts material reality. It suggests a reality which is parallel, or even claims a superior reality status to nature. Biederman

feels that those artists who speak of 'concrete art' and 'concrete reality' without defining the distinctions and relationships between the two, only produce a vague and nebulous alternative terminology. Biederman quotes one critic who resists the term abstract because of its association with the world of mathematics and logic. However, as Biederman points out, the abstracting process is something which both the artist and the scientist share and the new art should exploit this common ground, and there should be a common purpose between the scientist and the artist. Biederman's evolutionary theory of art is stated where he points out that the twentieth-century is an age of science and not theology, and therefore art should function in a more scientific way. The old art was tied to magical and religious functions, but the new art should embrace the more cerebral world of science.

If Cubism ultimately regressed into the world of appearances, the next stage up Biederman's evolutionary ladder is marked by the De Stijl group and the Russian Suprematists, whom Biederman refers to under the generic term of Two-Dimensionalists. These groups certainly eliminated the 'nature object' from their art, but in the process expressed this new order in two-dimensional terms. In order to avoid illusionism, there is a corresponding rejection of the third dimension, and therefore many of these innovators assert more the two-dimensional reality of the canvas.³⁴ In order to dispense with illusionism, even the illusionism of an abstract form like a square or triangle, the artist necessarily has to assert and construct on the two-dimensional plane of the canvas. The two-dimensional reality of the canvas, according to Biederman, is inadequate to contain or express abstractions from the three-dimensional world. Biederman states that the artists concerned: 'were assuming,

unconsciously or otherwise, that the criterion of reality was the canvas surface, rather than the reality of the actual world.'³⁵ This severance from the 'real world' is regarded by Biederman as an error. Biederman is constantly asserting that all abstraction has to be rooted in nature's structural processes and cannot operate autonomously on the canvas surface. The implication being that the artist takes his cue from nature's processes rather than allowing the 'concrete' realities of colour, shape, linear disposition, and so forth, determine the artist's working procedures.

Ultimately the two-dimensional canvas is an inappropriate tool for dealing with abstractions from a three-dimensional world. Those artists who went furthest in eradicating every form of illusionism, whether it be three-dimensional or two-dimensional illusionism, ended up, like Malevich and Rodchenko with absolute statements, such as Malevich's 'White on White' or Rodchenko's three canvases, each painted red, blue and yellow. As a result, both artists (like Paul Delaroche, on seeing the first Daguerreotype), declared the death of painting. Biederman endorses this point of view that painting as a medium has nothing more that is useful to offer, and can only go on with feeble reminiscences. Painting has served its purpose in Biederman's evolutionary scheme of things, and the man who terminated painting's usefulness was Mondrian.

For Biederman, Mondrian was the hero of the modern movement, because it was he who sought to penetrate the hidden laws of nature. As early as 1914 Mondrian, with reference to his 'Pier and Ocean' work, stated:

'Looking at the sea, the sky and the stars, I represented them through a multiplicity of crosses. I was impressed with the greatness of nature, and I tried to express expansion, repose, unity . . . But I felt that I still worked as an Impressionist and expressed a particular feeling, not reality as it is.'³⁶

One other statement by Mondrian which supports Biederman's general argument was made in 1936:

'The laws which in the culture of art have become more and more determinate are the great hidden laws of nature which art established in its own fashion. It is necessary to stress the fact that these laws are more or less hidden behind the superficial aspect of nature. Abstract art is therefore opposed to a natural representation of things. But it is not opposed to nature as is generally thought.'³⁷

Mondrian's early abstractions from nature like the 'Tree' series display an understanding of space, plane, and surface linear organisation, in direct descent from Cézanne. Biederman sees Mondrian as one of the few artists who developed logically the planar concept of composition initiated by Cézanne. Above all, in his early work Mondrian abstracts from nature's structural processes. However, in a later publication, 'The New Cézanne' (1958), Biederman criticises the later Mondrian for departing from nature and becoming something of an idealist as a result of Neoplasticist theory.

In 1920 Mondrian published his essay on Neoplasticist theory, in which he called for the 'denaturalisation' of art and the necessity for the subordination of nature to 'supreme reality'. Neoplasticism removed him from primary sources in nature and he tended to abstract from his own previous work rather than nature, and consequently his later work lacked that intimate correspondence with the forces of nature. Mondrian's increasing preoccupation with mystical notions of 'supreme reality' and his ultimate Neo-Platonic stance, denies the natural world which is regarded as a block between the artist and that vision of a divine order for which his abstract compositions stand as visual metaphors. Biederman felt that Mondrian's later works lacked life and freedom because he was seeking 'universal constants' and 'fixed laws' which are at variance with nature's essentially changing dynamics. Anything which tended to freeze

the process of natural growth was anathema to Biederman, and the crystallisation of form in art, as in nature, tends to close options and lead to devitalised symmetries. Nature is a corrective against what Cézanne called the 'ready made vision', and the loss of nature frequently leads the artist, not only into clichés' and schemas, but also into unnecessarily narrow confines. Mondrian's idealism and theosophy separated him from nature and therefore from those structural processes, and it may also have held him back from the logical step of moving into three-dimensions. Victor Pasmore, while acknowledging Mondrian's influence, also emphatically rejects his idealism and theosophy.

Biederman suggests that the logical direction of open-form construction is towards relief and three-dimensions. Where forms close they tend to not only assert the two-dimensional plane, but also point a finger back to the macroscopic level of reality. When closed forms were introduced in late Cubism there was a regression towards the 'nature object' and Biederman also observes something of a return to the closed form and macro-reality in Mondrian's last Boogie-Woogie paintings. Biederman suggests that Mondrian, having reached the abyss, failed to take the logical step towards three-dimensions, and like the Cubists regressed into a mode of abstracting from nature's appearances. Painting as a medium inevitably held back this decisive step.³²

Thus Biederman prepares the ground for the next 'advance' into this three-dimensional world which was made by the Russian Constructivists. A three-dimensional world, according to Biederman's logic, can only be penetrated by the artist and restructured in three-dimensional media. Because the artist is probing the structural base of nature, and looking

at nature's building methods, then the art is bound to reflect inner mechanisms rather than the traditional surface and mass of nature's forms. Just as painting is an inappropriate medium for exploring these factors, likewise, many of the traditional materials of the sculptor are rendered inappropriate. For this reason Biederman distinguishes the sculptor from the Constructionist (Biederman's preferred terminology to the more widely used 'Constructivist'). Traditional sculptors have been more concerned with abstracting from nature's appearances rather than inner structure and have therefore expressed themselves in terms of mass rather than space. Clement Greenberg's previous description of a new concept of space continuum, in which objects are no longer seen as isolated islands in a sea of space, is relevant here. The old Renaissance concept of solid matter in space gives way to a more atomised view of reality where space and mass integrate. This changing world view in art as well as in science finds its expression in Impressionism, Seurat, Cézanne, Cubism, Futurism, Rayonism, and ultimately Constructivism. It is this world view which the Constructionist penetrates, articulating notions of space and time, and presenting a form of sculpture which denies the more traditional qualities of monumental mass and permanence, concentrating more on the dynamics of interpenetrating plane and space. Modern sculptors like Moore, Hepworth, Brancusi and Giacometti, are essentially traditional in their media and content, and therefore belong to the Renaissance tradition of static, monumental sculpture. According to Biederman's evolutionary scheme, they belong to the Aristotelian world, whereas the Constructionists are of the modern post-Aristotelian world.

Likewise, a new age demands new media, and the old sculptural materials

and processes, like painting in general, are obsolete. The Constructionist embraces the new materials and technology of the machine age and rejects those materials which have been used since Paleolithic times. The chisel and the brush are consigned to the museum showcase. Biederman argues that the revision of sculptural media in the twentieth-century, has been as important a factor in the transformation and renewal of sculpture, as the introduction of the camera was for painting. It was the challenge of the machine and industrial age which roused sculpture from its nineteenth-century slumber. The machine is the instrument for the creation of the new art which is to be characterised by qualities of precision, simplicity and mathematical elegance. It is to be an art of mass production, because machines can repeat from original designs, so all the old qualities of uniqueness and handwork will be eliminated, and every work will be an 'original'. The mass production of art will mean the end of the old patronage, the necessity for curatorships, the speculation of the dealer, in short, the end of the whole structure of parasitic art establishments.³⁹

For Biederman, Constructionism is the dawn of a new age and represents the only direction for art in what he calls the post-Aristotelian age. At the beginning of his concluding chapter, Biederman summarises, by dividing the history of man into three periods - the pre-Aristotelian, the Aristotelian, and the non-Aristotelian. In the first period the individual is sacrificed to the group and man was closer to nature. It was not a world of sharp distinctions between man and nature and the outside world, and this undifferentiated world finds expression in primitive art where the interchangeability of man, animal and plant forms is manifest. In the Aristotelian world, hierarchies and classification

takes place and man becomes more self-aware. Aristotelian art is separate from nature and frequently sets out to rival or perfect on nature. Those who seek to represent nature as she ought to be are the idealists, but those artists who have penetrated nature in particular rather than general terms have been the innovators and made the greatest contribution to arts advance. The Aristotelian period has lasted until the present era. The intermediary period from Impressionism to Cubism prepared the ground for the new non-Aristotelian era which is characterised by the logic and advanced knowledge of science. This new era will reintegrate man and nature but not in the undifferentiated primitive sense. This new integration between man and nature will be achieved through a clear sighted knowledge of the laws of nature. The artist will no longer be imitating or competing with nature, but through his understanding of nature's structural processes, a new unity will emerge which will not only express the integration of man with nature, but will lead to a new integration of the arts. As Mondrian had previously stated, there would be a unification of the arts of painting, sculpture and architecture.

My summary of some of Biederman's theories set out in 'Art as the Evolution of Visual Knowledge' is very selective and, out of necessity, to some degree, simplistic. It is a very complex work providing powerful insights into some major developments in modern art. It is a work which Stephen Bann and Alastair Grieve both describe as 'magisterial', and its prophetic spirit and missionary zeal inspired a whole generation of artists who were committed to change. In many respects it is also a long-winded, repetitious, dogmatic and tedious

work, which, for an author concerned with non-visual language, suffers from a surfeit of verbosity. It represents a very idiosyncratic view of Western art history and he is also very selective and dismissive in his treatment of contemporary art. Certain key movements, like Futurism, are ignored, and movements like Surrealism are dismissed as regressive 'fantasy' art. Biederman, like many campaigning critics and theorists, cuts a swathe through the history of art, and anything which falls outside, or fails to fit in with his own unrelenting logic, is cast aside. Nevertheless, some of the most penetrating critics of the twentieth-century, like Clement Greenberg, reach their conclusions in this highly selective way, and Biederman, likewise, provides some tough minded analysis within the confines of his logical structure. Certainly for a generation of abstract artists, uncertain of the uncharted territory into which they were entering, Biederman's book appeared at the right time and provided much intellectual support.

'Art as the Evolution of Visual Knowledge' was siezed on by Victor Pasmore, Anthony Hill, Kenneth and Mary Martin, Robert Adams and Adrian Heath, and the discussion and correspondence between these artists and Biederman has been the subject of two papers by Alastair Grieve in the 'Burlington Magazine' and it is appropriate to summarise the first at this point.⁴⁰ The book had a profound influence on these artists although there were major areas of disagreement, particularly, in the case of Pasmore on the whole relationship of the artist with nature. On reading Biederman's book, Pasmore wrote to him expressing his interest in his theories and historical analysis and also sent a copy of 'The Artist Speaks'. In his reply Biederman asked two questions which were to prompt some lively and thoughtful correspondence.

'If you consider that the old mimetic content of art is now replaced by a creative one and that the artist's work now operates in the manner of nature rather than assuming the appearance of nature, then two questions come to mind.

- 1) If the old content is obsolete, is this also true or not of the means which have always been employed for communicating that content, namely the media of painting and sculpture?
- 2) If the artist no longer abstracts from the appearances of nature and instead creates or invents his art content which "operates like nature", then is it true or not that he must nevertheless learn to abstract from the operations of nature.⁴¹

On the first point concerning the obsolescence of mimetic art, Pasmore and Biederman are at one. Certainly during his period as a teacher at Newcastle, Pasmore promoted a vision of a new art which had little to do with nature, and such studio activities as life drawing were brushed aside as symbols of the old mimetic art. Also at this time Pasmore was using industrial materials, like wood and perspex, and there is little doubt that Biederman's chapter on the 'New Mediums of the Artist' served as a catalyst in this respect. Pasmore was also exploring the De Stijl, and Biederman's notion of the art work as a blue print for mass production, anticipating the concept of the multiple. A new technology for a new art was very much the theme of an exhibition organised with Kenneth Martin and architect John Weeks in 1954 at the Building Centre, entitled 'Artist v Machine'. The issues were also raised by Pasmore in a lecture which he delivered at Glasgow School of Art in 1953 entitled, 'Painting, Sculpture and Modern Mechanisation'. On Biederman's second point regarding the necessity for the artist to abstract from nature's structural processes, there was the greatest contention. Pasmore did not reply to Biederman's letter until two years later on 2nd January 1953. Before answering Biederman's point of nature's structural processes, Pasmore does question Biederman's interpretation of art history stating that:

'What these propositions amount to is an intensely subjective interpretation of history which is in danger of oversimplification' . . . 'The history of art cannot be regarded as one progressive evolutionary organism with one particular aim.' . . . 'any attempt to separate the history of art into two watertight compartments of positive and negative is bound to end in a cul-de-sac, because there is no scientific basis for such a distinction.'⁴²

Although Pasmore shares some aspects of Biederman's evolutionary analysis, his taste is more catholic, arguing that all the progressive arts are different branches of the same tree, all serving to release the creative freedom of the artist.

On the question of abstraction and nature, there are fundamental differences. Pasmore disagrees that abstraction is a natural evolution from naturalist painting, but a total revolution. Also, for Pasmore, abstract art does not have to relate to nature's structural processes, but springs from inner resources which are independent of the natural world. In his reply Pasmore states:

'Taken literally your conclusions mean a return to the pure copy theory inherent in classical art in which, roughly speaking, the mind was conceived as a static mirror reflecting the effects of the external world but with the difference that one is a copy of results and appearances and the other of methods and processes. This would be fully acceptable were it not for the fact that the copy theory has been considerably modified by modern knowledge - I refer to the fact that the mind is capable of projection as well as reflection. This means that the artist is a creative as well as an imitative being. He is not compelled to copy nature because he himself is a process of nature out of himself. His mind is conditioned as much by its own structural process as by the processes imposed on it from outside; hence his power of projection.'⁴³

The whole question of structural processes is central to Biederman's argument, but one of my own basic criticisms of 'Art as the Evolution of Visual Knowledge' is Biederman's own obscurity on this point. What he means by this is very unclear and it is only in earlier correspondence

with Pasmore, that he speaks more as an artist and less as a theorist, stating his case more simply:

'Nature is not something you pull out of a draw and put to work. It is something you have to learn to live in and work with. Look at a flower. a simple flower like a white daisy with a yellow centre . . . look at the endless, endless varieties of white lights. And with each new day, and all day long, these whites are changing' . . . 'The process from nature to the final object of art is this: we observe the rhythms of nature, the study of which results in structural information that is the structural process level of nature i.e. inferential abstractions about how nature builds. Now we do not directly transpose this information into our art, for this would directly result in mimetic activity rather than the invention intention of our art objective. We therefore translate the process information into the terms of our material and our objective in much the same way as did the inventors of the aeroplane, the objective being the flying object and not the imitation of a bird . . . each new work is not a final thing: it is part of the process of growth.⁴⁴

Pasmore takes Biederman to task on this whole key issue of structural processes:

'There seems to be some confusion between your definition of structural processes and what are, in fact, simply structural effects. Processes are essentially dynamic and imply causes, growth, movement, etc., whereas your study of white in flowers, changes of colour form in light, etc., are static factors and belong to the realm of effects.' . . . 'structural processes cannot be the content; they are only the means of constructing the form. Consequently both Arp and Calder as well as yourself or Mondrian and Pevsner could construct from structural processes. Indeed, Arp has already written: "I wish to produce as a plant produces fruit". On the face of it your argument suggests that Arp and Calder would serve as a more logical point of departure than Mondrian.' . . . 'nature's structural processes are relative to the particular functions of the objects in question. To abstract from processes, therefore, is logical only if one wishes to emulate the particular functions which go with them.' . . . 'The aircraft designer knows very well what he wants from nature. There is nothing subjective in his aims' . . . 'But the artist; what does he want from nature? its reality? Impossible. Its beauty? you carefully avoid mentioning the word: Nevertheless unless the artist can answer this question clearly, all talk of consciously abstracting from nature's structural processes, like the

aircraft designer, will be meaningless.' . . . 'Your desire to establish for non-representational art, a scientific basis in nature on a level of process certainly re-opens the possibility of an objective contact with nature lost in the increasing introvert orientation of art. However, one is tempted to ask if such a contact, as you describe, is actually possible, even if it were desirable. In the case of music, for instance; from what processes in nature have the composers abstracted their compositions?' . . . 'the difficulty about structural processes in nature is that they are related to particular functions and requirements which have no connection with the requirements of the artist.' . . . 'You wish to invoke the scientific methods of the Italian artists of the Renaissance, but your methods are not so water-tight as theirs. For instance, Naturalist painting was founded on a precise science which covered the observer as well as the observed, perspective appertaining to the eye and anatomy to the object perceived. That is to say a mechanistic mode of perception was cultivated which corresponded to the mechanistic structure of the objects in view. Your anatomy of processes, however, does not account for the subject. You have formed an anatomy, but no perspective: that is to say that you have not identified processes within the artist which correspond to the processes of nature outside him.'⁴⁵

Biederman replies by reaffirming the necessity of nature as the basis of all artistic endeavour, as a check, or corrective, to excessive subjectivity. He also clarifies his meaning about abstraction from natural processes by explaining that, perhaps, Pasmore might have interpreted his meaning too literally. He says that the artist should not abstract from particular objects, but from his experience of the general behavior of natural processes.

'We seek correspondence to the conditions of reality or nature (three-dimensional) in order that the structure of our art will be open to the possibilities evidenced in the functions of nature . . . I submit to the requirements of nature as much as I am able, because the process of nature demonstrates ramifications of structuring incomparably beyond anything that could be secured or conjured by deliberately ignoring nature (to the extent possible) by relying on man himself as independent or external nature as possible' . . . 'show me an artist, any kind, anywhere, any time, who has divorced or can divorce himself from all mimetic relations with nature.'⁴⁶

That last challenge by Biederman is taken up by Pasmore and the issue is

central to Pasmore's pedagogy. Pasmore evolved a mode of teaching based on abstract values and relationships, which had little to do with the world of nature. Pasmore was concerned with the manipulation of 'concrete' realities denying that they had any relationship with the outside world. In conversation with Victor Pasmore, he stated that few of the exercises carried out by his students had any reference to nature. It was his purpose to 'introduce his students to the paintbox', to the 'concrete' realities of line and shape making, independent of nature, just as the music student learns the scales which have no reference to the natural world. Victor Pasmore has never deviated from this position, and in a recent interview stated:

'I consciously avoid being influenced by visual, optical scenery now - however much I think it beautiful (and I do). I'm not interested in "abstract" pictures of clouds, say, of the sea. Not one iota. I'm interested in producing a completely independent picture, which can suggest a symbol for abstract ideas.'⁴⁷

In spite of his earlier reference to art imitating nature in her manner of operation (which, as a phrase, serves a useful function in changing our perceptions, but is an inappropriate description of what takes place in Pasmore's work), Pasmore asserts the 'concrete' independence of the art work:

'Like literature, representational form functions partly in an imaginative capacity. That is to say, it refers to forms other than its own: it is a mental construct whose relation to actual space is ambiguous. But pure form refers to no other object. It is a reality, logical and sufficient in itself - a function of the intellect rather than a description of it: as such, its relations with space are real and organic.'⁴⁷

Like Biederman, Pasmore suggests that two-dimensional painting is inadequate to deal with three-dimensional space without resorting to illusionism, and therefore the artist must inevitably move into

three-dimensional media, where he manipulates actual dimensions rather than simulations of those dimensions.

By 1954, the year in which Pasmore took up his teaching appointment at Newcastle, most of his ideas regarding abstraction were crystalised. In February 1961, Pasmore wrote an article titled 'What is Abstract Art' for the magazine section of the 'Sunday Times'. In this, Pasmore articulates his philosophy of art, arguing many well rehearsed points on the autonomy of form analogous to music. Much of this statement echoes the evolutionary argument of Biederman tracing the development of abstraction through Cézanne and Mondrian, although Pasmore also pays attention to Van Gogh, who, he argued, freed colour from its old descriptive role. Pasmore repeats the point that representational art is weakened by its ambiguous relationship with nature, and that abstract art, being self-referential has greater autonomy and 'unifies form and content'. Pasmore goes on to discuss some of the problems which the abstract artist encounters, and the necessity for simplicity in abstract processes. He describes the traditional painter engaged in a process of organising and selecting from those sense impressions which bombard the artist, peeling away successive skins of reality until he reaches a 'subjective centre'. The abstract artist has to build from a simple but objective centre 'until he finds a subjective circumference'. He draws attention to what may, at first, appear to be the inadequacy of simple abstract form in comparison with the richness and complexity of form we encounter in representational art, and suggests that this may be due to the limitations of the two-dimensional surface in dealing with abstract form. Simplicity, he argues, is a necessary condition of abstract art. Pasmore locates a problem in the nature of abstract art without fully explaining it. It

may be that when abstract paintings display complexity of form (like the early paintings of Kandinsky), it becomes impossible for the spectator to apprehend them in a purely formal, disinterested way, without reading all manner of associations and references to the phenomenal world.

Formal simplicity is essential in order that we recognise abstract values in their own terms, and one way of overcoming the visual poverty of two-dimensional abstraction, is to activate the surface and break out of the two-dimensional bounds into relief and three-dimensions. As Pasmore states:

' . . . abstract work will be unable to find its most powerful form in the surface-bound medium of painting alone. Because of its inherent nature, abstract painting cannot revert to conceptual illusionism, consequently it is confined to a two-dimensional format. The abstract painter therefore, inevitably finds his path of development blocked. But the cause of this blockage is not the idea of abstraction itself, but the physical limitation of pictorial material.'⁵⁰

There is a logical necessity for the artist to extend into the three-dimensional world of construction, sculpture, and ultimately architecture. Pasmore regards painting as the beginning, rather than the end of abstract art, and hints at the notion of architecture as the ultimate realisation of abstract values in art. Abstraction is regarded as a tool, rather than a philosophy, and it is the tool of the future, being the product of technical and theoretical experiments, and the discoveries of modern science. Something of Biederman's evolutionary vision come out where Pasmore states that abstraction emerges at a point of crisis in the evolution of the human mind and that it has rendered traditional techniques and practices inadequate. Pasmore was a visionary, seeing a new art for a new age, and abstraction for him was the language of the new art.

This notion of the integration of painting, sculpture and architecture, with all of its Bauhaus ramifications, became an increasing concern for Pasmore, and was the subject of a lecture which he gave at Newcastle University in 1967 after receiving an honorary doctorate. In 1955 Pasmore was given the opportunity of putting his concepts of a total art into practice when he was appointed Consulting Director of Urban Design of the South West Area of Peterlee New Town (until 1977). His thinking process in the planning of Peterlee was explained in a broadcast with J M Richards in 1967. He describes his designing method as a kinetic process, as he imagines a drive or perambulation through and between the buildings and open spaces. His designing method for Peterlee is not unlike the way he builds his constructions or intuitively puts marks on a canvas. Certainly the visual forms of his plans and elevations have a distinctive Pasmore character and his 'style' has not been unduely modified by the constraints of utility. One distinctive feature of the design was an open architectural structure placed by the lake. This structure with a mural scale composition was a free abstract invention representing something of his vision of the formal integration of painting, sculpture and architecture. This is the nearest that Pasmore gets to realising his Bauhaus vision of the total integration of the arts. Pasmore did undertake many mural scale commissions at the Newcastle Civic Centre, Pilkington's Glass Works, at Manchester and Newcastle Universities, but these were designs within existing structures, and Peterlee was unique in giving him the opportunity of putting together a whole integrated concept.

Two very significant works of an environmental nature were 'Exhibits I and II', created in collaboration with Richard Hamilton, in the Hatton

Gallery, Newcastle-upon-Tyne in 1957 and 1959. These environmental exhibits were important because they drew together so many aspects of Victor Pasmore's thinking. On seeing Richard Hamilton's 'Man, Machine and Motion' exhibition in the Hatton Gallery in 1955, Pasmore expressed his admiration for the formal spatial layout, rather than the imagery and content of the exhibition. Richard Hamilton, who was interested in the concept of exhibitions as a form of expression in their own right, eagerly took up Pasmore's comments, and proposed a joint exhibition which would be about form rather than content (Plate 61).⁵¹ Richard Hamilton recorded these exhibitions with an extraordinary set of colour slides where the camera was set on a tripod and a series of photographs taken from one fixed point throughout the day. Because the panels displayed differing degrees of transparency, translucency, and opacity, the whole exhibition underwent total transformation as the light changed throughout the course of the day. This was a totally environmental expression of light and change, not dissimilar to Biederman's reinterpretation of Monet's 'Rouen Cathedral' series, with a number of reliefs which exploited and activated the actual play of light over a surface. The exhibition was also consistent with Pasmore's long preoccupation with light. The poetic light and lyricism which characterised his early paintings of the Thames and Chiswick, is transformed, as Lawrence Alloway suggests in 'concrete' terms by the actual manipulation of light in perspex reliefs and in Exhibits I and II. Pasmore acknowledges the connection between his earlier Impressionism and his relief work. In evolutionary terms, Pasmore was continuing the work of Turner and Whistler, but the key question was whether that Impressionist past informed and nurtured the new 'concrete' realities of his constructivist present.

The transition from Euston Road Impressionism to abstraction in the work of Victor Pasmore was a gradual, thoughtful process, and there was no abrupt or revolutionary break in the sequence of events. Once the transition to abstraction had been made, however, there was still some tangible link between the abstract forms which Pasmore was using and the forms which characterised his Euston Road paintings. Pasmore was willing to accept that his preoccupation with light is reformulated in his perspex reliefs, but less willing to accept that many of his abstract compositions contain many characteristic forms which linger from his Euston Road past. As William Varley has pointed out, many of the flower head, petal shape, shrub, tree, breast, buttock and pebble forms, which characterise the repertoire of his Euston Road paintings, are transposed into his abstract works.⁵² Pasmore had meditated hard on the natural world before breaking into abstraction, and it could be argued that that prolonged experience provided him with the inner resources from which he could draw. It is ultimately questionable whether his art could be truly 'independent' of nature and one is bound to accept the logic of Biederman that: 'to deny that such art abstracts from reality, one would also have to prove that the artist came upon the notion of form, colour and the like without previous recourse to nature'.⁵³ The main question which has to be asked is whether a pedagogy which sets out to examine the elements of form, colour and the like, can succeed without any recourse to nature.

I began this chapter with a discussion of Whistler's influence on Pasmore, and in many respects Pasmore's work does represent a continuity of certain aspects of the nineteenth-century art for art's sake aesthetic. The formal nomenclature of Pasmore's paintings owe much to

Whistler and like Whistler, Pasmore displays a refinement of taste in his work, and above all, both compose and construct from within. If Whistler began the process of disengagement from nature, then Pasmore took this to its logical limit, although in the case of Whistler, Biederman, and Pasmore, there is the critical question of if, or how far, one disengages from nature. Whistler self-consciously challenged Ruskinian naturalism, but even he could be reverential towards nature, and always insisted that nature was an infinitely rich resource for the artist. Whistler, like the oriental artists he admired, did meditate on nature, and his famous 'nocturnes' are the free and spontaneous expressions of an acute visual memory. What Whistler absorbed from nature represented 'the knowledge of a lifetime'. Likewise, Victor Pasmore's later abstracts retain elements of his own visual memory and are not totally disassociated from the visual world. To totally disassociate from nature and obliterate every vestige of visual memory is a physiological impossibility. However, like Monet, who wished to abolish all preconceptions and face the natural world with the innocent eye of a blind man who had just received the gift of sight, so Pasmore felt the need to dispense with the world of natural association and rebuild from an objective base made up of elements which are totally independent of the world of natural appearances.

The new objective base would be created by the study of formal elements and Pasmore's teaching, and the work of his students, was all a part of his research into this new autonomous order. Pasmore believed that students could learn to compose with the elements, just as music students compose with sounds and structures which are independent of the world of natural sound. The question which is most frequently raised is whether this can reasonably be expected of students without some grounding in

naturalism. To use a Wittgenstein analogy, is naturalism a ladder which one has to climb in order to kick away? Pasmore, having climbed and kicked away the ladder had the material and inner resources from which he could compose. The pedagogic challenge was to present the students with an alternative ladder on which to get a toe hold. There had to be a non-representational order and structure which had a content as easily understood, and amenable to investigation and analysis, as the world of nature.

Richard Hamilton : The Natural and Man-Made World

While Victor Pasmore was abstracting and disengaging from the 'world of natural appearances', Richard Hamilton was seeking new ways of penetrating and analysing our perception of that world. Although, in some ways, Pasmore and Hamilton were moving in opposite directions, both shared a common concern with dismantling the surface of reality and putting forward new propositions. Although never an abstract artist, Richard Hamilton, in certain works, like 'Induction' and 'Chromatic Spiral' (Plate 55), did briefly use a form of abstract notation, but throughout the fifties and sixties, his main contribution to post-war art was in forwarding new forms of figuration. From the outset, with his early work on James Joyce's 'Ulysses',¹ which was concerned with stylistic and literary values, Richard Hamilton's work has been concerned with concepts and ideas, rather than form. With post-war modernism so strongly linked to formalism and abstraction, Richard Hamilton's work represented something of a conceptual and 'literary' challenge. At a time when it was fashionable to dismiss and disparage works of art as 'literary', Hamilton pointed towards those very literary, anecdotal, mythical, legendary, historical, and dramatic categories which Whistler and subsequent formalists despised. Also, Hamilton was making a stand against the 'anti-intellectuals' and 'intuitives' who held influential positions in the modern art movement, and in art education. It was in his intellectualism, and in his rejection of formalism, that Hamilton shares Marcel Duchamp's desire to 'put art to the service of the mind'.²

Richard Hamilton was introduced to Marcel Duchamp's 'Green Box' by Nigel

Henderson while he was a student at the Slade, and thereafter Marcel Duchamp was to exert a profound influence on Richard Hamilton's thought at every level. Richard Hamilton and Marcel Duchamp became friends and collaborators, and it was Richard Hamilton, through his writing and exhibition work, who disseminated Duchamp's ideas and work in this country. On the rejection of formalism, or 'retinal' art (as Duchamp prefers), Marcel Duchamp had this to say to Pierre Cabanne:

'Since Courbet, it's been believed that painting is addressed to the retina. That was everyone's error. The Retinal shudder! Before, painting had other functions; it could be religious, philosophical, moral.³

The following statement by Marcel Duchamp could almost have been made by Richard Hamilton. His intellectual and antiretinal position is clearly stated:

'I wanted to get away from the physical aspect of painting. I was much more interested in recreating ideas in painting. For me the title was very important. I was interested in making painting serve my purpose and in getting away from the physicality of painting. For me Courbet had introduced the physical emphasis in the XIXth century. I was interested in ideas - not merely in visual products. I wanted to put painting once again at the service of the mind. And my painting was, of course, at once regarded as "intellectual", "literary" painting. It was true I was endeavouring to establish myself as far as possible from "pleasing" and "attractive" physical paintings. That extreme was seen as literary. My 'King and Queen' was a chess queen and king.

In fact until the last hundred years all painting had been literary or religious: it had all been at the service of the mind. This characteristic was lost little by little during the last century. The more sensual appeal a painting provided - the more animal it became - the more highly it was regarded . . . Dada was an extreme protest against the physical side of painting. It was a metaphysical attitude. It was intimately and consciously involved with "literature" . . . My ideal library would have contained all Roussel's writings -Brisset, perhaps Lautreamont and Mallarmé. Mallarmé was a great figure. This is the direction in which art should turn: to an intellectual expression, rather than an animal expression. I am sick of the expression "bête comme un peintre - stupid as a painter".⁴

The whole Dada and Surrealist contribution to modernism represents an antithesis to the formalist position of those artists singled out by Biederman. Small wonder that Biederman dismissed them from his scheme of things. However, the position of Dada and Surrealism is critical in understanding avant-garde developments, other than abstraction, in post-war Britain. The roots of Pop art are seen in Futurism, Dada and Surrealism; movements which Biederman ignored or disparaged. This avant-garde, was spearheaded by Richard Hamilton, Eduardo Paolozzi, William Turnbull and Nigel Henderson who were exploring a wider visual and conceptual framework in Dada and Surrealism. Hamilton, Henderson, Paolozzi and Turnbull were all, more or less, contemporaries at the Slade School, and they all taught at the Central School of Art and in varying degrees were involved in basic design teaching. Paolozzi and Turnbull spent some time in Paris after their studies at the Slade and made contact with many of the key Surrealists. In 1947 Paolozzi visited Paris and made contact with Jean Helion who put him in contact with Braque, Arp, Léger, Brancusi, Giacometti and Dubuffet. He made friends with Tristan Tzara and became acquainted with Duchamp through Mary Reynolds who invited him round several times to see Duchamp's work in her house. Exhibitions of collage work by Duchamp and Max Ernst at Raymond Duncan's Gallery in Paris were particularly influential on Paolozzi, as well as the Klee memorial exhibition in Paris in 1948.

William Turnbull, who was a friend of Paolozzi, also settled in Paris in 1948 and followed a similar course, acquainting himself with Tzara. Léger, Brancusi, and Giacometti. He shared a similar Scottish background with Paolozzi and they both reacted against prevailing 'high culture'. Both Hamilton and Turnbull had been commercial artists, and one thing

which linked all three artists was their overwhelming interest in European art as opposed to post-war English Neo-Romanticism. In 1950 Turnbull and Paolozzi held a joint exhibition at the Hanover Gallery. Turnbull's work consisted mainly of sculpture executed in Paris and was characterised by simple stick forms, with slightly bulbous ends, rising from a flat plane. His paintings consisted of elementary clusters of lines and signs and symbols. Much of his work was influenced by Giacometti, but the growing, organic, moving, and playful nature of much of the material is reminiscent of Klee. The simple stick like forms and the spatial marking, are not dissimilar to those minimal elements which Richard Hamilton used to mark and articulate the picture surface of paintings such as 'Induction' and 'Chromatic Spiral' of 1950.

It is clear that Hamilton, Henderson, Paolozzi, and Turnbull, influenced each other greatly, and represented a new consciousness which was manifest, not only in their work, but also in their teaching. Of the impact of the Slade, Richard Hamilton states:

'It is often the case that the value of an education is derived from other students. I certainly learned less from 'teachers' than from my fellows. Nigel Henderson, also at the Slade after long wartime delays, disposed of his knowledge of the world of Modern Art with an easy wit and charm.'⁵

Nigel Henderson's background was quite remarkable and he brought to the Slade an impressive knowledge of modern art as well as some invaluable connections. His mother Wyn had close friendships with the Bloomsbury group and she took him on various trips to Europe where he met Max Ernst and Marcel Duchamp. Wyn Henderson eventually became director of Peggy Guggenheim's 'Guggenheim Jeune Gallery' in Cork Street which was one of the main centres of Surrealist art in London. In the mid-thirties, Henderson met distinguished scientists like J D Bernal,

William Pirie, Patrick Blacket and Solly Zuckerman, and as a consequence, studied biology at Chelsea Polytechnic where he became interested in microscopy. J D Bernal was particularly influential and Henderson describes him as:

'An intellectual Pied Piper when he wanted to be. He told me about Chevreul and the Rods and Cones and Seurat and I realised that artists didn't have to wear silly hats and canes and bop about as some of the Slade students still did when I served a stretch there.'⁶

It was Nigel Henderson who introduced Richard Hamilton to D'Arcy Wentworth Thompson's celebrated book 'On Growth and Form', and this book was not only central to Hamilton's early work as a painter and exhibition designer, but it was also to sustain much of his teaching, well into the nineteen-sixties. The book impressed Hamilton, not only for its significance and implications for art, but also for its beauty of imagery and literary style. Hamilton suggested to Nigel Henderson that the book would make an interesting subject for an exhibition. Hamilton had been engaged on exhibition design and had become absorbed in the idea of exhibitions as forms of art in their own right, having been interested in Le Corbusier's pioneering work in this area. Roland Penrose was approached by Nigel Henderson with the idea of mounting the exhibition at the ICA, and Penrose was enthusiastic. Originally Henderson and Paolozzi were involved with the project, but they dropped out leaving William Turnbull, the only other participant, as exhibition poster designer. Penrose's brother was an important scientist, and it was decided to set up an advisory committee of distinguished scientists including J D Bernal, Jacob Bronowski, Peter Medawar, Joseph Needham, and C H Waddington. Hamilton would have monthly meetings with them and they would direct him to visit leading crystallographers like Kathleen Lonsdale, at London University, and distinguished geneticists like C H

Waddington, at Edinburgh. The exhibition was promoted as a part of the Festival of Britain and Le Corbusier, who was visiting Britain, opened the exhibition and made it the content of a broadcast he was invited to give by the BBC.

The exhibition represented a successful synthesis of a variety of imagery ranging from specimens, photographs, diagrams, cinematic and still projections, mirror imagery, and split second illumination by strobe flashes (Plate 62). The environmental aspect of the exhibition, influenced by Le Corbusier, anticipated later notable exhibitions, and the mixing of imagery and preoccupation with mechanical devices, established themes which were later to be realised in his own work. On a visual level, the exhibition contained microscopic imagery of great beauty, but more importantly, the content of the exhibition established the theme of growth, form, function and process, which was later to influence his thinking and teaching philosophy, as well as his work. As Richard Morphet states:

'The causative relationship between form and function (function determines form) is one of the key themes in Hamilton's work, whether he is examining the structure of a bi-plane (1955), commercially motivated car styling (1955-58), a spiral form museum (1965-66), or photo-tinting in the holiday postcard trade (1965-67), and this list is almost at random. 'Growth and Form', like much of his work ever since, was a revelation (going far beyond the merely analytical) of exactly what we are seeing and how we are seeing it.'⁷

The causative relationship between form and function, and the inherent beauty of nature's processes, provides a model for the artist. To return to Pasmore's quote (from Coomeraswamy): 'art imitates nature not in her external appearance, but in her manner of operation', the concentration of awareness on process, mechanism and activity, rather than product, is in line with so many other aspects of modern thought.

Like Adolf Loos, who states that architectural meaning can be found in its function, and like his friend Wittgenstein, who states that philosophy is an activity rather than a doctrine, so the artist concentrates on process and avoidance of preconception and dogma. Concentration on process, activity and development, all of which become terms intimately associated with the creative act, presents a highly dynamic view of art and nature. It is a dynamic view paralleled in the thought of persons as diverse as Paul Klee and A N Whitehead. Klee's whole perception of nature was in terms of its dynamics, and the same view is expressed in the writing of A N Whitehead who presents a vision of nature in terms of events and evolving structures which are essentially creative and self-developing. As David Thistlewood states:

' . . . for him (Whitehead) the activities of the organism formed the substance of the organism: substance and activity were the same. His process of nature was not merely cyclic or rhythmic change: it was creative advance.⁸

On various fronts, meaning is being defined in terms of 'function' and 'activity', and the abolition of preconception and deferment of end is the order of the day. The implications for this artistically is a reorientation towards the inner structure and 'grammar', as well as the action of art, rather than preconditioned outcomes.

Abolition of preconception was central to the teaching philosophy of both Richard Hamilton and Victor Pasmore, and there is little doubt that D'Arcy Thompson's writing was influential on the former in this respect. Deferment of end, or 'final cause' is something which D'Arcy Thompson considers in his introduction to 'Growth and Form'. He states that certain concepts like space and number are remote from the category of causation:

'but natural history deals with ephemeral and accidental, not eternal nor universal things; their causes and effects thrust

themselves on our curiosity and become the ultimate relations to which our contemplation extends.'⁹

In the past men have, in trying to explain the phenomena of the living world, been most preoccupied with final causes, and teleological concepts of end or purpose in design. With Darwin's theory of evolution we face a teleology of evolution which emphasises adaptation without a final cause in which:

'The final cause becomes little more, if anything, than the mere expression, or the resultant of a sifting out of the good from the bad, of the better from the worse, in short of a process of mechanism.'¹⁰

He goes on to say that the physicist seeks not ends but antecedents and finds causes in the laws of matter and energy:¹¹ D'Arcy Thompson does not entirely reject all teleological concerns with final causes, and describes mechanism and teleology as the warp and weft of natural science. However, he quotes Bacon as a note of caution, that too much preoccupation with final causes:

'hath intercepted the severe and dilligent enquiry of all real and physical causes, and has brought it about that the search for the physical cause hath been neglected and passed in silence.'¹²

This emphasis on empiricism, on the rational analysis of the facts, and avoidance of preconception, was to find echoes in Richard Hamilton's teaching.

D'Arcy Thompson states that growth is both process and force, and the outcome of that process and force is form. Form is determined by the processes, forces and energies acting, both upon and from within the form. The image of form being a 'diagram of forces'¹³ strikes a very contemporary note, bearing in mind that the book was first published in 1917 in the aftermath of Futurism and Cubism. More relevant to the artist is the notion that the evolution and development of form should be

determined dynamically, and that form, almost by definition, is in a state of development and change. In artistic terms it leads to what David Thistlewood describes as a process-dominant attitude towards the production of art.¹⁴ A drawing is seen, not as an end in itself, but, in Hamilton's words, as a 'diagram of thought processes'.¹⁵ The essence of D'Arcy Thompson's work was to establish a sound mathematical basis for morphology, for, as he states in his introduction, a science cannot be regarded as a science until it is firmly grounded in mathematics. There is no doubt that much of the appeal of the book is based on the elegance and beauty of its mathematical analyses. D'Arcy Thompson himself was aware of this aesthetic dimension, where he states, in a spirit of what Joseph Needham describes as Pythagorean mysticism:

'The harmony of the world is manifest in form and number, and the heart and soul and all the poetry of Natural Philosophy are embodied in the concept of mathematical beauty.'¹⁶

This aesthetic dimension of the natural order of things, to a growing awareness of form and pattern, infusing every aspect of the natural world, and above all, a growing awareness of a pattern-forming function in our perception of that world, provided a common focus for both the artist and the scientist. The point is well stated by Herbert Read who wrote in a short preface to the publication 'Aspects of Form':

'Aesthetics is no longer an isolated science of beauty; science can no longer neglect aesthetic factors.'¹⁷

'Aspects of Form', edited by Lancelot Law Whyte, was originally conceived as a catalogue to 'Growth and Form', but its final format was a collection of papers based on a symposium following the exhibition. A number of scientists representing several disciplines pooled their ideas through a collection of papers dealing with fields as diverse as astronomy, embryology, biochemistry, physics, perceptual psychology and

aesthetics. Lancelot Law Whyte was a physicist who believed in reconciling certain antagonistic scientific fields of enquiry and he had a vision of a unified discipline embracing physics, biology, psychology and art.¹⁸ There was nothing new in this attempt to bring artists and scientists together, J D Bernal had made a significant contribution to 'Circle', and Biederman had addressed his work to the scientist as well as the artist. Richard Hamilton had been encouraged by the fact that the scientists he had dealt with were people of great cultural breadth, who were as appreciative of the aesthetic dimension of 'Growth and Form', as of its informational output, but perhaps the most important aspect of the exhibition and the symposium, was the range of imagery and possibility which the scientist had thrown up. The scientist was revealing a new world for the artist on a macrocosmic and microcosmic level.

D'Arcy Thompson provided a mathematical description of the natural world, but as Joseph Needham pointed out, that represented only one level of reality. The biochemist deals with the matter, rather than the form of life, and within the larger structures which the biologist deals with, are contained organs, organ cells, cell nuclei and mitochondria. Their smaller units can be broken down into colloidal particles and molecules and so forth, with one structural level overlapping another.¹⁹ From the microcosmic structure of the atom to the macrocosmic world of the astronomer, science was providing a vast range of visual possibilities for the artist to consider, and one dominant concern among Richard Hamilton and his colleagues in the Independent Group, was the extension and range of art's content.

D'Arcy Thompson's influence can be seen in Richard Hamilton's paintings of 1951, such as 'Particular System', 'Heteromorphism' (Plate 63) and 'Self

Portrait' in which all manner of biological symbols occur. Earlier works like 'Induction' and 'Chromatic Spiral' demonstrate something of this process-dominant method of execution, in which the artist approaches the canvas with no preconceptions, and allows the work to proceed through a series of decisions and responses to elementary mark making. Although Hamilton had no image or picture in mind, they do bear a striking similarity to some of Kathleen Lonsdale's crystal structures. In other paintings natural forms and cell structures are placed in spaces which are articulated by points and marks which suggest a perspective system with a vanishing point. Space and depth perception become an increasing preoccupation in such paintings and 'd'Orientation' and 'Super-Ex-Position' where location points are charted and plotted along variable horizons and grids based on the Golden Section. While Victor Pasmore was using the Golden Section as a means of asserting abstract autonomy, Richard Hamilton began to use similar grids and proportion systems as a means of re-exploring the visible world. If Victor Pasmore had turned his back on the natural world and was composing abstractions which asserted the two-dimensional picture plane and rejected illusionism, Richard Hamilton was doing just the opposite by investigating the most traditional of pictorial illusions, perspective.

In 1953, Hamilton explored the idea of movement in space with a series of works based on the chronophotography of Muybridge where the contours of the moving figure are superimposed, producing a cross between the separate form exposure of Muybridge, and the continuum images of Marey. Hamilton was interested in exploring Cubist and Futurist methods at this time and there is a direct relationship between these images and Duchamp's similar investigations of the moving figure exemplified by

'Portrait', 1911, 'Nude Descending a Staircase', 1912, and 'Sad Young Man on a Train' 1911. Duchamp's 'Nude Descending a Staircase' was directly influenced by Marey's chronophotographs, and it is important to establish that Duchamp's work was strongly influenced by the scientific climate in which he was working. Marey was a physiologist, but his photographs had an aesthetic appeal which was immediately recognised by Duchamp and Boccioni. The whole of Duchamp's major work, 'The Bride Stripped Bare by Her Bachelors, Even' is permeated by pseudo-scientific law and contemporary notions of the fourth-dimension. Duchamp's science is totally irrational and playful, representing a poetic counterpart to the true realm of science, but, nevertheless, he produces images which have striking parallels to D'Arcy Thompson in particular, and the scientific world in general. Muybridge through frame exposure, Marey and Bragaglia through continuum exposure, Duchamp and the Futurists, all explore the phenomenon of the moving object in front of the spectator. In a series of paintings, 'Still Life?', 're Nude', and 'Trainsition', all executed in 1954, Richard Hamilton explores the idea of spectator movement, and through his knowledge of the perceptual psychologist J J Gibson, he begins to explore further the question of visual perception.

Richard Hamilton had become very interested in Gestalt psychology and visual perception when these ideas were discussed by the members of the Independent Group. Gestalt psychology had influenced the thinking of Lancelot Law Whyte and Rudolph Arnheim had made an important contribution to 'Aspects of Form' before publishing his 'Art and Visual Perception' in 1956. However, Hamilton who found Arnheim's work too art historical, was more receptive to J J Gibson, whose researches into depth perception corresponded more with Hamilton's own creative interests. Gibson was a

scientist who had been employed during the war to investigate depth perception and how this related to such problems as landing aeroplanes on aircraft carriers. Because Gibson's research was concerned with practical realities and the facts of vision, Hamilton felt that what he had to say related more closely with his experience and awareness as an artist.

In his book 'Perception of the Visual World', J J Gibson begins by establishing the difference between the 'visual world' and the 'visual field'.²⁰ The visual world is that array of objects, surfaces, volumes and textures located in space which the eye constantly explores and scans. It is the phenomenal world which we perceive and take for granted. The visual field can best be apprehended by regarding a scene with eyes fixed, and attending not to one point of focus, but to the whole field of vision, right out to the vague, indistinct periphery. If one attends to just what comes into the eye, one becomes aware of the boundary of vision, and the world arranged as a sensation of tonal and coloured patterns which become less and less distinct towards the periphery. Gibson describes awareness of the visual field as the experience on which the doctrine of visual sensation is based. By fixing the eye, one is isolating and particularising vision to that of pure sense impression, and it is no coincidence that the unfocused sensation of the visual field should be most approximated in the world of art by the late paintings of Monet. One paradox of vision is that the more static the eye, and the more attentive one becomes to this passive apprehension of sense impression, the less one actually sees. The reason for this is that the eye does not receive sense impression in a passive manner. The receptors in the eye do not passively react to darkness and

lightness on the retina, but more actively respond to significant changes of surface, contour, angle and movement. Perception of these changes implies a constant scanning movement even when focusing for a time on a static object. If the constitution of the natural world is essentially dynamic, then so are the mechanics of our perception of that world.

What we see in the panoramic visual world is very different to what we sense in the visual field. What we receive in the eye is not a copy of the visual world but a correlate. As Colin Blakemore stated in one of his Rieth Lectures:

'... we do not perceive our retinal images; we experience an externalised world of solid things. In a way the Greeks were right. As you watch a man walk away, you see that he remains the same size (although the image of him on the retina certainly shrinks). Look at a coin when you turn it in your hands and you perceive it as a round disc of metal (although its image is a different series of ellipses). What we construct in the mind's eye are the constant physical properties of objects; and so we should because these are the things we need to know.'²¹

What we see is not the Euclidian world where parallels never meet, but a projection of that world through an infinite multiplicity of projections. It is a world experienced through perspective projection which is in a constant process of transformation and deformation. The visual world, unlike the visual field is panoramic in nature and perceived through the constant action of scanning and movement.

The notion of a world perceived like a reel of cinematic projections exercised Richard Hamilton's mind on a number of levels. In his teaching, it is exemplified by the first exercise described in 'Diagrammar', Richard Hamilton's contribution to the catalogue of the 'Developing Process'; the first major exhibition of student work from Leeds and Newcastle, held at the ICA in 1959. This exercise in

'Diagrammar' demonstrates what he describes as a 'cinematic realisation of time' and displays a frame by frame sequence of process and change while at the same time exemplifying a positive and negative duality on the way (Plate 64). In Hamilton's own work early examples are 'After Muybridge' (Plate 65), and 'Man Walking (after Muybridge)' executed in 1953, where Hamilton explores ideas of change and movement through a series of superimposed contours. The source of these images is self-explanatory, but the result owes as much to Duchamp and Marey as it does to Muybridge. The chronophotography of Muybridge, Marey and Bragaglia differ in many fundamental aspects. Muybridge's studies of animal locomotion involved a precise method, whereby the animals, through a series of trip wires, triggered off a series of consecutive exposures. The result is a clear sequence of separate exposures recording each movement in the manner of a cinematic frame. Marey's images demonstrate a superimposition and merging of a form which more emphatically describes the character and continuity of movement and rhythm. There is no doubting the aesthetic appeal of Marey's photographs, but Muybridge and Marey were, first and foremost, concerned with a scientific explanation of animal movement. Bragaglia was a Futurist exploring photography within the context of that movement and his concerns were primarily aesthetic. Like Marey, his images represent a continuum of movement, suggesting a moving form in front of the camera set with a low shutter speed. In both Marey and Bragaglia, one encounters a blurring image on the film emulsion. The mechanical photographic record of movement is limited in the case of the still camera, by the light sensitive film emulsion. Our own perception of movement is different because the light sensitive cells in the retina are far more efficient than photographic emulsion. Photosensitive cells on the retina are self-renewing and

therefore capable of registering continuous movement without blurring the image. J J Gibson likens this mosaic of photosensitive cells to an electric sign consisting of light bulbs, wired in such a way that any number of patterns can be lighted at the same time. Photographic emulsion is only adequate to deal with a single exposure, whereas the light receptive cells in the retina are constantly receiving and transposing changing patterns of light.

All these factors of perception allied with his own interests in Cubism and Futurism are explored in a number of Richard Hamilton's paintings of 1954. While profoundly admiring Analytical Cubism, Hamilton questioned the term 'analytical' as applied to this phase of Cubism. He argued that Analytical Cubism was more the product of intuition than analysis, and that the only truly analytical work to emerge from Cubism was Duchamp's 'Nude Descending a Staircase', which, ironically, was rejected at the time as Futurist heresy. Duchamp, like the Futurists tackled the moving form in front of the spectator. In 'Still-Life?' and 're Nude', Hamilton moves towards the static object in a systematic and analytical way. In 're Nude' (Plate 66) we encounter a whole series of superimposed transformations and projections of contour as Hamilton registers his movements towards the model. The painting is not just about spectator movement, or an exercise in analytical Cubism, but is an excellent example of a self-defining, process-dominant approach to painting. Hamilton's working process was to make a watercolour study in front of the model and transfer that to the larger canvas in the model's absence. When he resumed working the watercolours from the model, the canvas, representing the previous day's work, was incorporated into the background of the watercolour study. Thus the finished picture

displays, through the painting within the painting, the process of its own development.

One painting which springs directly from J J Gibson's 'Perception of the Visual World' is 'Trainsition IIII' (Plate 67) painted in 1954. This complex work is explained by Richard Hamilton in the following way:

'A landscape, 'Trainsition', took a particular visual phenomenon of motion perspective, the apparent rotation of the visual field around a point of focus when the eye is moving significantly in relation to a space. In a mobile situation, the only fixed point, that is to say visually static in relation to the other forms and locations, is the point that the observer focuses on at any given moment; change focus to another position, closer or further away, and the direction of movement of objects and surfaces in front of and behind relates to the new visual fulcrum. The extent of displacement of any point is a function of its distance from the point of focus and the distance the eye traverses. 'Trainsition' examines the consequences of a big displacement as is the experience of focusing on a middle distance object (a tree) from the window of a moving vehicle (a train).'²²

This whole phenomenon is dealt with in chapter seven of 'Perception of the Visual World' and Hamilton uses J J Gibson to underpin a very systematic and analytical approach to motion perspective. What Hamilton and Gibson describe is the experience of moving in a given direction (on a train), and the sensation of changing rates of velocity between the foreground and the background. Distant objects are static, whereas the foreground rushes past in a continuous stream. As Gibson states:

'... the rate at which any element or object flows is inversely proportional to its physical distance from the observer, as Helmholtz noted. The motility of the world, like its density, decreased as it recedes.'²³

In Hamilton's picture the eye fixates on a tree in the middle distance, which, being the centre of focus, remains static, while the horizon and foreground flow in opposite directions. Those points between the tree and the foreground move from left to right, while those points between

tree and horizon move from right to left, giving the sensation of the landscape rotating in an anticlockwise direction around the tree, while the train speeds on in the opposite direction of the arrow indicated in Hamilton's painting. The pointilist notation and soft Cézannesque marks operate in an explanatory and diagrammatic way, in the sense that these scattered marks demonstrate the mechanics of motion. The arrow reminds us of Paul Klee, but more to the point, the punning nature of the title - train sit I on - and the relationship to 'Sad Young Man on a Train', suggests the ever present spirit of Marcel Duchamp.

Perhaps the most important aspect of these works, from the sparse austerity of 'Induction' and 'Chromatic Spiral', to 'Trainsition', is the constant search to probe beyond the material surface. The disintegration of surface and the probing of molecular structure became a feature of much of the teaching at Newcastle. It is central to the work of Ian Stephenson, a student and teacher at Newcastle during this period, whose atomised pictures are the result of his penetration of the world of Futurism, Cubism, and above all, Seurat's Pointilism. Another distinguished student and teacher at Newcastle, Rita Donagh, has described the value of the basic course in terms of the insight it gave into perceiving the constituent elements of the visual world. For her, the main lesson of the course was the idea that reality could be broken down into its constituent elements, and the point, line and plane procedure was one way through. Richard Hamilton utilised blown up images as a means of conveying the molecular structure of works of art, and Rita Donagh describes one of his demonstrations in the following terms:

'Richard projected this slide - I think it was a Rembrandt or a Dürer - on a wall, very big, and you saw the marks of the pencil, or ink, broken up in the enormous enlargement, so that the whole thing became an abstraction of dots and lines and things. It was like a parallel between the point, line

and plane notion at the turn of the century which was concerned with seeing beneath the surface of matter. Matter was being dissolved so that you could see into the human body, or into the cell. It was a very important idea which affected a lot of artists, and that remained with me in my teaching. That was the thing that remained important, and still does.²⁴

Richard Hamilton's demonstration of the molecular world of dots and dashes beneath the surface of the Dürer, or Rembrandt, parallels that world of cells and colloidal particles, which Joseph Needham described as operating within those larger mathematical structures which D'Arcy Thompson analysed.

D'Arcy Thompson, J J Gibson, and a number of scientists had opened up a new world and a vast range of possibilities for the artist. But there were other worlds other than the natural world to explore, and the Independent Group were actively seeking other possibilities. Their main concern was the content and range of art. As William Turnbull pointed out, the traditional content of sculpture was the human figure, either reclining, seated, standing or on horseback, and he and Paolozzi sought other possibilities even if it meant going outside the normal confines of art.²⁵ It was this willingness to look outside the normal cultural perimeters that unleashed the intellectual revolution which took place. It not only presented a challenge to prevalent cultural elitism, but it led to a more outgoing and less introspective view of art. The older, narrower confines were split open and all kinds of new ideas were released, analysed, and given serious attention by the artist and critic. The best known results of this were the changed attitudes towards modern, urban, popular culture. There was nothing new about this celebration of the urban landscape and modern technology; the Futurists had been doing this forty years before. However, this post-war evaluation of contempo-

rary urban life, did bring a sociological, political, literary, philosophical and psychological dimension to the content of art which acted as a complement to the introspection of abstraction. Nevertheless, the breaking open of cultural conventions, and the questioning of the cultural status quo, brought accusations, then, as now, of anti-culturalism and anti-intellectualism.

Like so many associations, the Independent Group represented no unified programme or philosophy, but set about tackling various issues on a wide front, convening meetings, lectures and seminars on a whole range of topics. The first series entitled 'Aesthetic Problems of Contemporary Art' was chaired by Robert Melville. Lectures and seminars over a period consisted of Tony del Renzio giving the first known lecture on American action painting, William Turnbull talked about concepts of space, Frank Cordell on popular music, Reyner Banham on American car styling, E W Meyer on communication theory, Richard Hamilton on consumer goods, and Eduardo Paolozzi's famous epidiascope display of popular magazine, science fiction, and advertising imagery. Over the years the topics ranged from logical positivism to helicopter engineering. Exposure to this wide range of issues, and contact within a number of leading figures representing all manner of disciplines, both within and outside the arts, contributed to the maintenance of Hamilton's wide intellectual horizon.

It was within this intellectual climate that Hamilton became familiar with Gestalt psychology and various other aspects of contemporary thought. When I asked about Gestalt psychology he answered:

'I read it all - I read enough. I got a superficial understanding, and of course, there is lots of useful information and it works . . . I read it because it seemed relevant to what interested me as an artist, but you must also understand that at the time I was in the Independent

Group and these things were very current in the Independent Group. Arnheim was low grade stuff. We were looking at people like Claude Shannon, Robert Viner, and cybernetics, information theory, and the theory of gains. I don't say that we all understood it very well, but we were trying to understand them, and so Gestalt psychology was rather low grade stuff. It was very easy to grasp those principles.'²⁶

In an interview with Peter Sinclare, Richard Hamilton stated that although cybernetics and information theory were discussed, it would be absurd to suggest that they had any depth of knowledge. The important factor is not the depth of knowledge, but the attitudes and awareness that knowledge generates.²⁷ It is in this respect that these meetings of the Independent Group were to have a lasting influence on Richard Hamilton's teaching. In one sense the meetings of the Independent Group were opening up entirely new ground for discussion and investigation for the artist, and a more conservatively minded person in the fifties might well have asked what advertising, science fiction, information theory, helicopter engineering, logical positivism and Tom and Jerry had to do with art. The answer is that anything goes as far as the content of art is concerned, and the more that one can indicate new possibilities, nudging towards new sources outside the traditional confines of fine art, the more one is likely to break down preconceptions on the nature of art.

After 1956, Hamilton was introducing material into his paintings which did not fit into any comfortable fine art category, and in many circles his work was not recognised as painting at all, but as exercises in design. As a teacher he was firmly installed in the Design School and so he was not identified with the constituency of fine art. As Rita Donagh states, Lawrence Gowing, who was professor at Newcastle did not fully understand what Richard Hamilton was doing:

'Lawrence did not think of Richard as a painter, that is certainly true. He selected a couple of exhibitions for the

Arts Council, and Richard wasn't included in them. It was a strange thing really, because he was the one person who really knew Richard was doing all those important pictures. 1958 was the date of the famous collage, and when I was there he was certainly working on 'Hommage a Chrysler Corp', and 'She'. They were there in the studio and if you went to see Richard about something, these extraordinary pictures were on the easel. Larence knew the work and was in a position to exhibit it; but he never did. I think he didn't think it was really painting. He thought it was design.'²⁸

The collage to which Rita Donagh referred, was in fact produced in 1956, and was to be reproduced as a poster and catalogue for the exhibition 'This is Tomorrow' held at the Whitechapel Gallery. This famous collage entitled 'Just what is it that makes today's homes so different, so appealing?', was one of the first overt Pop statements containing categories of subject matter, including comics, cinema, newspapers, domestic appliances, television, telephone, space and cars, which lie outside the traditional confines of fine art. The list reflects in visual form the deliberations of the Independent Group.

The exhibition 'This is Tomorrow' was conceived as a collaborative exercise, with various artists teaming up with architects and designers in creating an environment. Victor Pasmore was involved, but the most controversial contributions came from Independent Group members, like Eduardo Paolozzi who collaborated with Alison and Peter Smithson and Nigel Henderson. Hamilton worked with John McHale and John Voelcker to produce an environment made up of popular imagery from films and magazines as well as optical images, cinematic projections, juke box recordings, taped comentaries, olfactory stimulation, and general disorientation. Hamilton and Voelcker divided their exhibit between two categories concerned with imagery and perception. Under imagery, Hamilton lists journalism, cinema, advertising, television, styling, sex symbolism, randomisation, audience participation, photographic image,

multiple image, mechanical conversion of imagery, diagram, coding, and technical drawing. Under perception are listed colour, tactile, light, sound, perceptive inversion, psychological shock, memory, and visual illusions. Many of the popular film and advertising images, including Marilyn Monroe, Robbie the Robot, and blown up food advertisements, anticipate subsequent developments in the Pop art of the sixties, and the optical illusory images, including Marcel Duchamp's rotoreliefs, are prophetic images of Op art. Certain optical conundrums, like the interlocking black and white shapes, anticipate specific aspects to the positive/negative exercises in Hamilton's foundation course, and the blown up images of spaghetti suggest other aspects of the course as well as the work of James Rosenquist. The exhibition was very prophetic in laying out the content of much of the art of the fifties and sixties. As Richard Morphet states, Hamilton, regarded the exhibition as a survey of his current field of interest and the images and categories were put forward as the raw material from which subsequent art could be made.

In terms of his own work, the discussions and lectures of the Independent Group had a direct, if delayed, impact. Hamilton derived the form of 'Hers is a Lush Situation' from Reyner Banham's lecture slides on automobile design. These lectures not only suggested the imagery for his paintings, but also established the theme of man and woman in relation to the machine and modern technology. In 1955, Richard Hamilton designed the 'Man, Machine and Motion' exhibition at the Hatton Gallery in Newcastle (Plate 68). This exhibition, inspired by Siegfried Giedion's book 'Mechanisation Takes Command', had catalogue notes written by Reyner Banham. Several catalogue statements by Banham, in both style and content, anticipate Hamilton's own comentaries on paintings like 'She'

and the 'Towards a definitive statement on the coming trends in menswear and accessories' series, in which he explores the theme of man, woman and machine, and the way they are presented by the media. In the following note on motor-cycles Banham states:

'The heroic aspect of the legends of motoring have given currency to the feeling that full-size machines are strictly for males, and that something daintier and more ladylike is required for the distaff side. Thus the motor-scooter, the characteristic miniature transport of the post-war period, is always felt to be something of a ladies machine, and has found some employment, as here, as a display-stand for that other characteristic post-war miniature, the starlet.'²⁹

Where Richard Hamilton states that the theme of woman in relation to domestic appliances is as 'archetypal as a Western movie gun duel'³⁰, and Lawrence Gowing in his introduction to 'Man, Machine and Motion', describes the relationship between man and machine as like the composite creature, the centaur; all are united in giving stress to the heroic, poetic and mythical dimension of man and machine.

'Man, Machine and Motion', in its exploration of the man-made world, was the complement to 'Growth and Form', and the theme of form and function was common to both exhibitions, but the element of fantasy, and the colourful heroism of aviation pioneers, like Lilienthal, transcended the mechanistic sub-plot of functionalism. Lilienthal had to be viewed, not simply as an engineer, but also as an artist, and Hamilton enjoyed this interpenetration of art and invention, where advances are made, often, by illogical and irrational leaps of the imagination. Where scientists assemble such unlikely materials as fabric, bamboo and rollerskates, their manner of thinking and working is almost identical to the artist. The machine is an assemblage, in many instances, of disparate entities and the dividing line between the work of art and the machine become somewhat blurred. Tools which extend the physical capacities of our

bodies, or instruments, like spectacles, which extend the range of our senses, are extraordinary products of the inventive imagination, and it is this common inventive spirit which is shared by the artist and the scientist. Once again, the so called polarities of the arts and sciences are obliterated where there is a common process and method of working. It is the quality of thinking and the power of the imagination to find new solutions to problems which intrigued Hamilton, and which influenced his pedagogic attitudes, where quality of thought, rather than intuition was paramount. Acknowledged, rather than forming a feature of the exhibition, Leonardo da Vinci represents the model of the artist-inventor, and, undoubtedly, he more than any other 'put art to the service of the mind'. Leonardo represents something of an enigmatic paradox in so far that his science and analytical intellect generated an art, which was distinguished, not by those scientific characteristics of logic, clarity, precision, and fact, but by a shadowy mysticism that transcends all. It was his capacity for synthesis and the power of his imagination which accounts for this paradox. Leonardo demonstrates that invention and fantasy are shared factors in both the scientific and the artistic mind.

If Leonardo da Vinci was the embodiment of the Renaissance artist-inventor, then Marcel Duchamp is his twentieth-century counterpart. Unlike Leonardo, Duchamp was no serious scientist, but he was a very important pseudo-scientist. Duchamp's oeuvre was a response at almost every level to the scientific world, but it is a mocking response, in which he turns the scientific world on its head, distending the laws of physics and chemistry, and ironically, floating poetic analogies to the theories of relativity and indeterminacy. His 'oscillating densities',

uncontrollable weights', 'compressor rods', 'crude wooden pulleys', 'monotonous fly wheels', and 'emancipated metals', which inhabit the world of the 'Large Glass' (Plate 69), are expressions of his pseudo-physics. Duchamp creates a pseudo-mechanical world in the 'Large Glass' in which the laws of science are inverted or subjected to the laws of chance. The 'Large Glass' is the product of an extraordinary intellect, and his methodology has the fastidiousness and precision of a scientist, but it is, first and foremost, a work of fantasy, giving visual correspondence to concepts which defy visual form. In the context of 'Man, Machine and Motion', Duchamp's work, along with that of Ernst and Picabia, should be seen as complementary, and accompanying mechanistic fantasies. Their world is less deferential towards the machine, but their comic inventions and parodies, if different in intent, do overlap the more bizarre products of invented fact.

Duchamp described his 'Large Glass' as an unfinished 'epic', and we encounter in Lawrence Gowing's introduction to 'Man, Machine and Motion', such epithets as 'heroic', 'fabulous', 'fantastic' and 'mythical', in describing man's relationship to the machine.

'The ancient union of horse and rider, fused into a composite creature with an unruly character of its own, always potentially anarchic and fearsome, never entirely predicatable, was symbolised in the myth of the centaur. The new union of man and machine possesses as positive a composite character and liberates a deeper, more fearsome human impulse. This new affiliation, evoking much that is heroic and much that is terrible, is with us, not only in the sky, but in every street where a boy joins magically with his motor-bicycle, his face whipped by the wind and stiffened by a passion for which we have no name.'³¹

The relationship of man, woman and machine is taken up by Richard Hamilton in such works as 'She' and the 'Towards a diffinative statement on the coming trends in menswear and accessories' series. In

his paper 'An Exposition of 'She', Hamilton points out that certain art movements in the past, like Impressionism, evoke their own period because they make reference and give expression to the society which gave them birth. Movements like Cubism and Tachism are not concerned with society and only mirror their own internal concerns. In the twentieth-century, artists have been slow to react to certain basic facts and experiences of modern life, and Hamilton finds it quite extraordinary that few twentieth-century works of art make reference to such an important commodity as the motor-car. Hamilton expresses a typical Independent Group attitude by suggesting that the content of art should be widened to accommodate such everyday items as the vacuum cleaner and the motor-car. In order to make good the omission of the car, Hamilton paints and titles one of his pictures 'Hommage a Chrysler Corp' in the spirit of Fantin Latour's tribute to Delacroix. Like Baudelaire who inspired the generation of the Impressionists with his appeal to seek out the heroism of modern life, Hamilton states:

'I would like to think of my purpose as a search for what is epic in everyday objects and everyday attitudes.'³²

There was a growing desire on both sides of the Atlantic among a number of artists to break away from the introversion of abstraction and Abstract Expressionism and give some concrete expression to contemporary society. The sources which they plundered in popular culture may, on the surface, be regarded as anti-cultural, but Hamilton insists that art must serve its ancient purpose of rendering the epic and creating the myth, and he locates contemporary myth making and epic in such unlikely and unheroic areas as popular cinema and advertising. The epic and the heroic can be seen in the cinema, the odalisque in 'Playboy' magazine, and social commentary in comic strips and on television. In one sense Hamilton is appealing to the traditional role of art, but indicating that

these traditional themes must be sought in these 'non-cultural' centres. What Hamilton was proposing was no different to Courbet's challenge to the establishment, when he painted the fire brigade as a symbol of self-sacrifice, heroism and public duty; suggesting that you don't need to dress your subjects in Roman togas in order to express such values. The content and imagery of Pop, as its label suggests, has become firmly associated with the world of popular culture and entertainment, and the figures of Marilyn Monroe, Bing Crosby, Mick Jagger, Elvis Presley and the Beatles loom large. However, it would be an oversimplification to identify Pop entirely with popular culture. Certainly the world of entertainment creates its own myths and legends, but Hamilton is concerned with broader social and political issues. Like Courbet, Hamilton's leftist and radical position is expressed in overtly political paintings such as 'Hugh Gaitskell as a Famous Monster from Film-land', 'Swinging London', 'Kent State', and more recently, perhaps his most powerful image of the modern myth, 'The Citizen'. In this last work we are presented with the bearded, blanketed, dirty protester in the Maze prison, surrounded by the gestural marks of his own excrement, gazing towards the spectator with the intensity and religiousity of an anchorite. While Hamilton is willing to accept the identity of Pop artist, it would be more accurate to describe his position as a painter of modern life.

The painter of modern life has a traditional role and few artists have a greater sense of tradition and history than Richard Hamilton. Within the twentieth-century, Hamilton associates the Pop celebration of urban society with that of the Futurists. The kinship with Dada is also acknowledged in the challenge which that movement presented to

contemporary cultural assumptions, although Pop would claim a more positive affirmation of the cultural world it encountered. The Surrealist meditation on the extraordinary and enigmatic within the commonplace and banal, represents a similar quest to seek out the epic within everyday objects and attitudes. However, it is not just shared attitudes which link Pop with Dada and Surrealism, but also shared pictorial methods and procedures. The content of Pop was one thing, but presentation was critical, and the new pictorial means and methods were as important as the radicalism of the content. Social comment was not unique to Pop, as the Euston Road school could lay equal claims to a social conscience; what was important to Hamilton's generation was the establishment of a radically new figuration. It was in the collages, photomontages, and assemblage of Dada and Surrealism that Pop was able to take its cue. Ernst's collages in particular were to have a profound impact on Eduardo Paolozzi, and the ingenuity of Duchamp's chance procedures, and the complex mixture of techniques in the 'Large Glass', were to have a lasting impact on Hamilton. Duchamp went to elaborate lengths to eradicate personal style and touch from his work preferring to adopt procedures which ensured impersonality, and above all, exposed the concepts, rather than the taste of the artist. Likewise, Hamilton became preoccupied with presentation techniques in which ideas determine style.

Richard Morphet has described Richard Hamilton's works as 'anthologies of presentation techniques'³³ and there is no doubt that style and presentation has been a major concern. His admiration for James Joyce is due to Joyce's ability to mix and overlay different styles in the one work and Hamilton attempts such a procedure in his own early illustra-

tions of Joyce. In Hamilton's paintings one encounters a tension between the mechanical methods of presentation and free painterly expression. Passages of free painting are mixed with impersonal diagrams, photo-silkscreened elements, collage, relief, air-brush work, as well as marks produced by totally random methods. Style is consciously invoked where Hamilton refers to other artists, as in 'My Marilyn' (Plate 70), where photographic images of Marilyn Monroe are overpainted in Abstract Expressionistic and Pointilist styles in reference to De Kooning and Seurat. 'Picasso's meninas' (Plate 71) is a recreation of the Velasquez composition peopled with figures representing the different styles and periods of Picasso's vast oeuvre. A more recent work relating to James Joyce, 'In Horne's House', shows a juxtaposition of artistic styles from ancient Egyptian to Cubism. Style and presentation is not just confined to fine art tradition and convention, and Hamilton brings a degree of connoisseurship to his analysis of photographic imagery. That style in photography, as in art, is determined by use, is explored by Hamilton in a number of ways, from his investigations of photographic practice in advertising, fashion photography, instantaneous press photography, the picture postcard, the expertise of the cinema still photographer, as well as less contrived images of the amateur photographer who captures a momentous event, like the assassination of President Kennedy or the Kent State shootings, on an eight millimetre home movie camera. It is not just the conventions of photography which interest Hamilton, but also, as in fine art, the constituent elements which make up the photographic image, from the scan lines of the television set, to the grainy specks of the photographic enlargement. 'Whitley Bay' and 'People Multiple' explore, not only the character of marks which make up a photographic image, but also the Gestalt by which we infer meanings and form pictures

from a few rudimentary marks. Hamilton is inexhaustable in his quest to understand the different modes of picture making, but if one is looking for an underlying compositional procedure, then collage must be seen as the dominant pictorial method, and it was collage which suggested the way forward to a new kind of figuration.

In his autobiography, David Hockney described the dilemma which faced the art student in the late fifties and early sixties. Abstraction and modernism were so closely aligned that it was almost impossible to be a figurative artist and a modern artist at the same time. The significance of Pop, was not so much its content, as the opportunity it gave for an alternative figuration to the Euston Road model which dominated the art schools at the time. The situation in the Department of Fine Art at Newcastle was extraordinary in so far that working together were two leading figures representing totally different positions in post-war modern art. While Pasmore was turning further away from the natural world, Hamilton was systematically exploring it on several levels. Through 'Growth and Form' he was instrumental in yielding the world of biology, mineralogy, and microscopy as new possibilities for the artist. The man-made world of the machine and the new urban landscape with its supermarkets, cinemas and advertising imagery, was presented as new raw material for art. Possibly one of Hamilton's most challenging and controversial propositions was the notion that secondary sources, in forms of photographs, magazines pictures, advertisements, cinema and television images, could be a fruitful field of research for the artist. In pedagogical terms the implications of this were far reaching because it represented a shift from the direct observation of the life room, still-life and landscape, towards the analysis of pre-packaged material. It posed the question that real life may be that world which we encounter

in the glossy magazines and on television, rather than the seated nude and the apples in a dish. The adolescent boy with his motor-cycle magazines and 'New Musical Express' is absorbed in a world which is intensely real and has an imagery and language which has not been touched by the artist. These new worlds and new possibilities were indirectly communicated to Hamilton's own students, as he was reluctant to impose his own taste and interests. What was important, was to communicate the idea that in art 'anything goes'.

In his teaching, Hamilton would constantly refer to sources which, at face value, seemed to have nothing to do with art, and some of his most important lectures were given, not within the foundation course programme, but as separate, one-off events. One lecture entitled 'Glorious Technicolour, Breathtaking Cinemascope Sound' was a technical exposition of the latest in audio-visual technology which few students understood, but like his lectures on Duchamp's 'Large Glass', what mattered, was not understanding, but the plane of awareness it generated. If the artist is to confront the real world then he must accept that the raw material of that real world will not immediately suggest or present itself in artistic terms. What Hamilton attempted to do, was to confront his students with the raw material and suggest ways that it could be manipulated in artistic terms. As he stated:

'what I was attempting, however successfully or unsuccessfully, was to give the idea that it is the manipulation of the real world, and that the real world included a lot of new kinds of materials such as the stuff we saw on bill-boards. It wasn't the Constable mill that was the real world - the sole real world - but what you saw when you walked up Pilgrim Street . . . I'm sure that the lectures I did when I was in Newcastle must have seemed very perverse to the students who were confronted with all this material which came from the cinema and industrial design . . . It was a shaking up process for myself as much as for the students . . . Really anything goes.'³⁴

Equally important, however, was how you presented Pilgrim Street, as a Euston Road painting could do that quite adequately, and Richard Hamilton's tireless investigation into the different modes of picture-making was as important as the range of subject possibility. Hamilton's attempt to embrace the visual world on so many different levels and his proposition that 'anything goes', may place him at an irretrievable distance from Victor Pasmore. However, if one ignores the content and considers Hamilton's presentation techniques and approaches to picture making, his manipulation of secondary sources, and the way that he is analytically and intellectually distanced from his subject, then one can sense a common ground between the two artist. Both were trying to find means of getting behind nature's surface appearances.

PART THREE

The Development and Philosophy of the Foundation Course

Basic design teaching at the Central School was left to each individual teacher and there was no common teaching philosophy because most artists were employed on part-time contracts and there was scarce opportunity to share ideas. There is little information on the early teaching of Victor Pasmore and Richard Hamilton. Terry Frost enrolled at Camberwell because he wanted to study under Victor Pasmore, and was somewhat dismayed when Pasmore suggested that he would benefit more by looking at modern art in the Redfern Gallery than attending his Saturday morning painting classes.¹ Both at Camberwell and at the Central School, Pasmore was teaching methods of mathematical composition based on Ghyka and Hambridge. At the Central School, Richard Hamilton recalls his surprise at encountering Victor Pasmore teaching such raw material as day-release apprentices. It seemed extraordinary to him that such a distinguished painter was required to teach such ill-disciplined students, and was not given a more comfortable niche in the Painting School. What is interesting, is the way that Pasmore was applying his notions of modernism to the work he was doing with these students. Richard Hamilton recalls going into his room and seeing his students producing wire mobiles and making copies from Paul Klee reproductions.

'I think the mobile idea came from a notion of modernity . . . these boys were good with their hands. They were junior apprentices and they probably had a pair of pliers in their pockets, and the idea of giving them wire was a stroke of genius. I think it was the same with the Paul Klee reproductions. He would be just trying to get them to understand what modern art was all about - it was a mystical idea about modern art. It works in a funny sort of way because he speaks with such conviction and people get the

idea that there is something magical about modern art, and you had to emulate it to get the feel of it.'²

It is interesting to note that Paul Klee was also the starting point for the radical teaching of Harry Thubron at Sunderland and Leeds.

Erik Forrest relates how Harry Thubron and Wendy Pasmore (who was teaching with Thubron at Sunderland), introduced drawing exercises 'a la Paul Klee' to their students at Sunderland.³ Also, in an interview with Peter Sinclare, Harry Thubron recalls his brief period teaching at the Joseph Rowntree School where Werner Haftmann's book, 'The Mind and Work of Paul Klee' provided the inspiration for much of his teaching.⁴

Richard Hamilton's early teaching sprang from D'Arcy Thompson. Shortly after his exhibition of Reaper engravings at Gimpel Fils Gallery in 1950, and the 'Growth and Form' exhibition of 1951, Richard Hamilton was appointed to a part-time lectureship at the Central School of Art. Here it was a question of finding students to teach by going round the various departments until a viable teaching group was established. Hamilton found himself teaching mixed classes of design students and he felt it appropriate to apply general principles of growth and form derived from D'Arcy Thompson. In 1953 he was appointed to the Design School of the Department of Fine Art at the University of Newcastle-on-Tyne. It was Hugh Casson who put Hamilton in touch with Lawrence Gowing who was advertising a vacancy in the Design School. Gowing had little sympathy for the existing commercial design course within his department, and wished to appoint someone who could teach design, but whose background had sufficient breadth to span the gap between fine art and design. Indeed, it could be argued that Lawrence Gowing had little interest in design, as such, and preferred a painter to fill a space previously occupied by staff with narrower craft and commercial design expertise.

Hamilton's main responsibility was teaching textile and stained glass students, but in spite of Gowing's reluctance to allow Hamilton into the painting school, he did teach the fine art students for half a day a week. William Varley who was a design student at the time recalls some of those early sessions with him:

'A small group of us who very much regarded themselves as a favoured elite would have Richard coming in and presenting what were the seeds of the foundation course as it became. The work actually took place in the Design School and everything was design orientated. He would proceed by giving visual examples that might have been microscopic specimens -some cells separating, or sometimes he would talk about iron filings with a magnet under them. Generally speaking, he did not outline what he wanted us to do. He would talk about these exercises as being problems in logic, rather than ones with aesthetic preoccupations. So we would do things such as serial progressions, from positive to negative, constructed like single frames in a film narrative, or we would do the flow diagram, or those area divisions which you call cholesterol studies. It is wrong with hindsight to criticise the presentation of that, but I don't think any of us were aware of the criteria by which we made a better or slightly less interesting piece. There was a good deal of confusion about that. The way in which we worked was absolutely intuitive given the framework of the exercise. I think that even then we had a notion that Richard himself was special; that he was the man pointing towards progressivism in art. You must remember the context of the time. I don't think that many people understood what abstract art was all about and we went into it with a certain degree of enthusiasm because this was exciting.'⁵

Hamilton's embryonic course was established by the time that Victor Pasmore arrived in 1954.

Lawrence Gowing appointed Victor Pasmore as Master of Painting and it was the intention of the appointment to establish an artist of high repute, rather than initiate a radical change in art education. Pasmore himself felt that a radical change in art education was long overdue, and states in the following letter:

'As head of the Department of Painting at Newcastle I was in a unique position of being able to establish this experiment as a major factor in the school curriculum. The reasoning behind my insistence on this was that in the schools of

painting and sculpture in London and throughout the country there was no connection between the antiquated nineteenth-century teaching and the revolutionary developments in modern art. In my mind the course was nothing more than an attempt to set the ball rolling to bring art teaching up to date.⁶

In one sense Victor Pasmore was in a unique position to initiate those changes because Newcastle was one of those few university departments with a thriving practical art course, and being a university department it had a degree of autonomy which the art schools lacked. Harry Thubron at Leeds was constrained by Ministry of Education examinations and had to employ special instructors to ensure that his students met the technical demands of official examinations.⁷ Harry Thubron operated in a constant state of conflict between his desire to innovate and the necessity to meet examination and validation requirements. Victor Pasmore, in recent conversation, pointed out that there existed a ludicrous situation in the art schools where examinations tested very traditional disciplines, and 'modern art' was only tolerated under the umbrella of 'free composition'. For him, art schools were out of date and he felt that life drawing and perspective had no relevance to the needs of modern art. He regarded his basic course as a beginning, but not as a recipe or precept for modern art education. Pasmore saw the course as a grounding for abstract art and did not regard it as relevant to the needs of figurative artists, and for this reason insisted that the course should be a voluntary affair for those students interested in abstract art. In this respect there is some difference of opinion between Victor Pasmore and Richard Hamilton, because Hamilton stated that when Lawrence Gowing left and Kenneth Rowntree was appointed professor, Victor Pasmore urged that the whole first year course be given over to the new foundation course.

Up until his appointment at Newcastle, basic courses at Camberwell, the Central School and elsewhere, were initiated for the benefit of craft and design students, and the big innovation at Newcastle was the extension of these principles to fine art. As Victor Pasmore states:

'Since the Central School basic courses were confined to the design departments and the great innovation at Newcastle was its extension into the schools of painting and sculpture. As a fully committed abstract painter and also director of the painting school, I was in a position of being, not only able to introduce my course to the fine art students, but also form a special department and invite Hamilton to join me with the course which he had installed as lecturer in the school of textile design before I arrived in Newcastle. The subsequent importance of Thubron was that he was able to do the same at Leeds after he too had been appointed head of the painting school there . . . In view of its extension beyond the design schools into those of painting and sculpture the combined Newcastle/Leeds initiative constituted an important advance. But the point to understand is that so long as an abstract foundation course was confined to industrial and allied design, nobody questioned its validity; but directly it infiltrated the sacred realm of fine art it caused uproar!'⁹

Richard Hamilton agreed that the application of the basic course to fine art students was something which made Newcastle uniquely interesting. For him, it was a kind of reversal of the Bauhaus situation where artists devised a foundation course for craft and design students. In this instance it was a case of artists devising a similar course for artists. Although there were a few textile and stained glass students at Newcastle, the vast majority of students were painting and sculpture students and as Lawrence Gowing observed in correspondence:

'We did not think of it as specifically design teaching and I am myself quite uninterested in design. We thought of the basic course at Newcastle as specifically preparatory to work in painting. If you remember this course I am sure you will agree and remember how far it was from serving the purpose of designers.'¹⁰

Richard Hamilton did suggest in conversation that the course probably served the needs of designers least. If the course was less than satisfactory for designers, Pasmore suggests that the course also was

unsuitable for representational painters, because it was essentially about abstract art:

' . . . in terms of painting and sculpture an abstract course of study can relate only to their abstract development. In the 1950s visual representation was still the order of the day in art school teaching while the small abstract movement between 1946 and 1950, was still regarded as subversive in respect to art teaching. But after the big American initiative in abstract painting, which reached England in the 50s, young artists became increasingly attracted to it so that an abstract foundation course applied to the fine arts, became a viable alternative in the schools . . . But now that the euphoria for purely abstract painting and sculpture subsided and to some extent has developed into a reaction against it a distinction should be made between an abstract course for industrial and other designers from one established for painters and sculptors. Where the former can be obligatory for all, the latter should be voluntary. An abstract course for a student committed to visual representation could be very disturbing.'¹¹

What is not altogether clear is the perception of what is meant by a foundation course. Pasmore is quite emphatic that foundation course does not mean a first year course and he brings forward the suggestion that for certain students it should be an option.

We have been so conditioned to the idea of a foundation course being a common experience for all first year students, that it is difficult to grasp Pasmore's notion of a basic course which is both optional and ongoing. In his letter Pasmore states:

'Under my direction the abstract course was not a full-time commitment for the first year (I would not have allowed that); it was a one day a week engagement for students of every year, whether for beginners or advanced, parallel to their main studies in painting, sculpture or textile design. Perhaps afterwards Hamilton had to follow the instructions of the Ministry of Education which had accepted the idea of an abstract course in its schools provided that it was confined to the first year.'¹²

Pasmore is quite adamant that the abstract basic course should not be confined to first year studies. In conversation with him and in a recent Sunday Times interview he stated:

'In no sense of the word is it a first year course. I'm still doing it.'¹³

The critical point he makes is that he is still doing his own foundation course. Pasmore's basic course was an extension and development of his own creative preoccupations and he unashamedly admitted that he used his own students as guinea pigs in exploring aspects of abstract form.¹⁴ In one sense he was involving his students in his own research and it is small wonder that he resented the notion that basic form study should be confined to the first year as it rather demeaned the status of the activity. For this reason Pasmore resigned from the Coldstream Committee when they recommended basic form teaching in the first year and rejected Pasmore's proposition that it should be taught beyond the first year.

However, one senses changing perceptions of the course as it developed and there are a number of contradictory statements. In his contribution to the 'Developing Process', Pasmore calls for the development of a new foundation which is appropriate to modern art and modern techniques, and not something which is marginal to existing academic courses. In his introductory statement, Pasmore calls for a foundation course which is unitary and integrated, and this seems to contradict his other statements which suggest a concurrent structure operating in parallel to other studies in painting, sculpture and textiles. In this statement, Pasmore does appear to be writing about a foundation course in the terms in which it is generally understood, that is, as a preliminary course which prepares the ground for further development. The whole notion of a foundation is that it represents the first stage of construction and does not extend to the top of the building. 'Development', is the key word and 'Developing Process' is the preferred course description, implying a

dynamics which he felt was lacking in many basic design courses. He states that he does not want a series of ready-made abstract exercises, but a course in which only the beginning is determined and which allows for a 'dynamic voyage of discovery'. As he states more recently in a letter:

'My reference to the "old basic form" or "basic design" was perhaps misleading. What I regard as old is the title because "basic form" or "basic design" imply something fixed, static and ideal. But what I taught was that any form, shape or process can serve as a starting point for abstract painting and sculpture whether it be a geometric square or a blot of ink, a rigid construction or a fluid pigment. In my course, therefore, what was predetermined was not the end but the beginning. For instance, if the given exercise involved constructing a square it would not be an ideal square but the student's own personal square. Hence my title "The Developing Process".'¹⁵

Pasmore rejects Bauhaus methods as being idealised and rigid and contrary to the spirit of much that he was doing, but in his statement in 'The Developing Process' he does call for a scientific approach to problems. He calls for a scientific basis for study and a course which encourages analysis and empiricism. He goes on to say that such a course:

'must provide not only the means for intuitive development, but also objective foundations for analytical research.'¹⁶

The appeal for a scientific basis and the use of such terms as 'empiricism' and 'analytical research' has a familiar ring. One is reminded of Kandinsky's call for a laboratory art, and there is no doubt that the use of scientific terminology is, to some degree, a reaction to the climate of vagueness and subjectivity which characterised so much art education at the time. Both Victor Pasmore and Richard Hamilton in their different ways were striving to introduce some content, system, and above all, some thought processes into their teaching methods. It represented an intellectual shift from a technique based course of instruction towards a greater emphasis on ideas, thought processes, and open

attitudes. It is, as previously stated, a process-dominant way of working, in which the experience and working process, is more important than end results.¹⁷

Pasmore states that students are presented with an 'objective' problem and they are free to develop it in any way they choose. He states that:

'Exercises should be developed both in the abstract and "from nature". But the nature which is analysed is not confined to the finite phenomena of classical naturalism; it is extended to the wider sphere of relative processes. At certain stages mathematics can be utilised, but here again the finite geometry of classical art is not the yardstick of absolute measurement.'¹⁸

The first statement only makes sense when it is understood in the wider context of the abstract theory outlined in the earlier chapter. The implication is that the student takes his cue from nature's processes rather than nature's appearances. From the evidence, with the exception of colour analysis, little of Pasmore's teaching allowed much scope for the student to analyse the 'finite phenomena of classical naturalism', by which I assume he means nature's surface appearance. The second statement on the use of mathematics is interesting in so far that it indicates that mathematical proportion was still an important part of Pasmore's teaching in the later fifties, but the overall meaning of the statement is not clear. On the whole, Pasmore prefers to introduce exercises and propositions in which the results are open-ended, rather than the finite resolutions which mathematical systems may determine. Throughout the text, Pasmore argues the necessity of a fluid dynamic approach and he deplored any teaching method which employed slick, ready-made formulas. This necessity for an essentially dynamic approach is endorsed by Harry Thubron in his contribution to the 'Developing Process' catalogue. Of the foundation course, he states that:

'It must become a living and vital organic unit that is in continual change.

Such courses will become increasingly concerned with a more analytical and scientific approach to colour-form, space and nature - and in complementary terms, with a more vital and free pursuit of the intuitive and instinctive mark.'¹⁹

In this last sentence Harry Thubron locates the essential problem which accompanies any attempt at a more structured, objective and systematic approach to art teaching. All the participants wanted a more thoughtful and analytical approach without jettisoning entirely, freedom, spontaneity, intuition and vitality. Although there were differing degrees of emphasis among the participants, with Thubron placing more value on the role of intuition than Hamilton, all were concerned with steering a middle course between blind intuition and arid concept. Thubron recognised the paradox that in good teaching, the analytical method can free the intuition rather than stifle it.

In the final paragraph in his contribution to the 'Developing Process', Pasmore emphasises the multidisciplinary base of the foundation course:

'An exercise in the partitioning of space, for instance, begins in the division of two-dimensional area (drawing) and develops into actual three-dimensional structure (architecture). Similarly a project in shape making and shape relationship begins in two-dimensions (drawing or painting) and ends in three-dimensions (sculpture or construction). This unitary and integrated principle of development makes possible a form of study which can be established as a foundation in a school of art or technology which deals with visual art in any form. Such a training, therefore, could bring together, in spirit, where it is not possible in actual practice, all branches of the visual arts which are necessarily separated through technological, social and economic differences.'²⁰

Here Pasmore's notion of the foundation course is clearly a base from which all the other disciplines will spring and common sense would dictate that this would be a first year course. Perhaps Pasmore's later objections to basic design teaching as a first year course, is a reaction

to the assumption that it should only be a first year course, and as he rightly argues, the study of abstract form can sustain a lifetime's work and it should not be regarded as a low-level, elementary activity.

Perhaps what is more interesting about the final paragraph to the 'Continuing Process' catalogue, is his Bauhaus vision of unity and the systematic, step by step progression from the two-dimensional drawing to the work of architecture. It also reveals something of his evolutionary view of modern art.

The 'Continuing Process' exhibition and catalogue were produced in 1959, and to some extent represent a rationalisation after the event. The earliest statements on basic design can be found in the publicity for the Scarborough Summer Schools which were initiated by John Wood, of the North Riding Education Authority in 1954. The main participants on the Summer School programmes were Harry Thubron, Victor and Wendy Pasmore and Tom Hudson. Richard Hamilton had nothing to do with the Summer Schools and never had any contact with Harry Thubron. The Summer School courses were for anyone interested. although the vast majority of people attending were teachers. John Wood held a philosophy that, at root, all the arts are one, and the Summer Schools included courses in Drama and Music as well as integrated arts programmes. John Wood's method was to informally group a number of students with artists, scholars and educationalists, and hope that this chemical mixture would generate ideas. In an interview with Peter Sinclare, John Wood picturesquely describes what happened as a 'smittling process'.²¹ This is a reference to the 'smit', or paint which Yorkshire farmers use to mark their sheep, and which rubs off, in a confined space, from one sheep to another. By the same process ideas rub off from one person to another when you

stimulate the right creative environment. Among those involved with Drama, over the years were Stephen Joseph, who directed the programme, Jordan Lawrence, Minos Volonakis, Harold Pinter and Tyrone Guthrie. Harold Pinter, who was relatively unknown at the time, gave a reading of the 'Birthday Party' which was one event which caused much controversy and discussion. Other participants included Sir John Summerson who accompanied a group of students to Castle Howard, and occasionally participants from outside the arts, such as the astronomer Patrick Moore, would be involved. Distinguished students who participated in the art courses included John Hoyland and Norbert Lynton. John Wood fully participated in events and one year translated a one-act play from Molière, with Maurice de Sausmarez designing the set, Edward Allen arranging the music, while the students designed and made the costumes. Many of the students were involved regardless of their backgrounds, and John Wood found it necessary, in order to overcome some of the technical and professional aspects of dramatic and musical production, to import experienced students from the Royal College of Music and the Royal College of Dramatic Arts. One significant observer at the Summer Schools was Herbert Read who was a close associate of John Wood, Victor Pasmore and Harry Thubron.

How influential Herbert Read was is difficult to determine. Undoubtedly his book 'Education Through Art' was one of the most influential post-war books on art education and this was read by all the participants in basic design education. David Thistlewood suggests in his book 'A Continuing Process', and in his book on Herbert Read's aesthetics,²² that Read was a key figure in the whole movement, and that the Leeds course in particular, was a manifestation of Read's educational thinking. In so

far that Herbert Read emphasised the importance of a process-dominant mode of working, then there is a measure of endorsement. This attitude is expressed by Herbert Read when he addressed a group of students at the Summer School:

'You must not be under any misapprehension; these are not works of art, although some of them may be near to it . . . these are essays, they are trials, they are experiments and they are valuable. But they are not ends.'²³

However, few were willing to acknowledge Herbert Read's influence. Tom Hudson was certainly influenced in his researches into child art by Herbert Read and he received much encouragement from him. Generally, it was Herbert Read's support which was valued as Victor Pasmore acknowledges in correspondence:

'I knew Herbert Read very well and had countless discussions with him on art; but we looked for his support rather than influence, which he gave very generously. Child art, the theme of his book "Education Through Art" had no influence at all on my basic course at Newcastle.'²⁴

William Turnbull and Richard Hamilton are quite emphatic in rejecting Herbert Read as any influence. On the contrary, they felt some degree of opposition to Herbert Read whom they felt was out of touch and out of sympathy with their generation.²⁵

The Scarborough Summer Schools ran from 1954 to 1957. Harry Thubron, who was introduced to John Wood by Maurice de Sausmarez, was the first art director in 1954, and the following year he was joined by Victor Pasmore and later by Wendy Pasmore and Harry Thubron. According to Victor Pasmore, when he was invited to direct the Summer School, Harry Thubron and Tom Hudson acted as his 'assistants'. Who was the senior figure and who was the disciple of who, varies from one account to another. Pasmore claims to have been involved for two years running, presumably in 1955 and 1956. Thubron lists the years of his involvement from 1954 to 1956,

acknowledging Pasmore's contribution only in 1956. There is, however, a surviving brochure of 1957, listing Victor and Wendy Pasmore, Harry Thubron and Tom Hudson. The Summer Schools were a part of the adult education programme for the North Riding of Yorkshire and should be seen in the context of progressive and enterprising movements in adult education in the North of England. Harry Thubron had been involved with adult art education producing courses in the North East for the Carnegie Trust where Lady Trevelyan had been the driving force. This growth in adult education courses can be traced back to certain pre-war enterprises among the unemployed; the most notable being the Ashington group of artist miners. There is little doubt that the pioneering work of the Carnegie Trust did establish a positive and outgoing attitude towards the arts and architecture in the North East. In an interview with Peter Sinclare, Harry Thubron describes how these enlightened ideas lit up what was then a very barren part of the country, establishing a 'dream' of the North East which was to inspire, for right or wrong, planners and men of vision like T Dan Smith.²⁶ The prestigious Civic Centre in Newcastle with its mural by Victor Pasmore, sculpture by Geoffrey Clarke and David Wynne, tapestry by John Piper and engraved glass by John Hutton, bears witness to the outcome of this vision. Harry Thubron, with his roots in Country Durham, was fiercely proud of his Northern identity, and regional pride is allied with a desire to pioneer a transformation in the arts outside the cultural monopoly of London.

The earliest basic course outlines survive from the Summer School programmes, and they are unique in representing a Newcastle/Leeds synthesis with all the main participants, excepting Richard Hamilton.

From the course statement (included as Appendix A) two points emerge giving emphasis on process, rather than end result, and there is a self-conscious emphasis on modernism and the obsolescence of naturalism. The content of this statement, and the language; particularly such phrases as 'nature's effects and appearances', overwhelmingly suggests Victor Pasmore's authorship. Pasmore's emphasis on the 'conceptual' rather than the 'perceptual' demonstrates an emphatic shift towards concrete abstraction. The modernist tone, and the implication that the old art education along with naturalism is obsolete, is reinforced by another statement publicising an exhibition held at the Royal Festival Hall in 1957 (Appendix B). This exhibition of basic design teaching by Victor and Wendy Pasmore, Harry Thubron and Tom Hudson was held in connection with the SEA conference. In this it is stated that:

'The need for a reassessment of the process of teaching in the visual arts, first foreseen in the nineteenth-century, has now become a reality. Several factors underly the cause.

1. The disintegration of the old classical and naturalist tradition.
2. The social demand for an end to the separation of the fine and applied arts.
3. The introduction of art activity in schools as a creative counterpart to the traditional systems of education.

The development of a new process of art teaching on purely emotional and intuitive levels has already been established in infant schools with successful results. However, the need for extension on the intellectual and rational plane of the adolescent and adult student is now necessary. At the same time any integration of the fine and applied arts requires a form of training capable of much wider extension than is possible in the specialised empiricism of traditional training. The study of fundamental principles of form or structure and perceptual processes therefore, must now replace that of specialised optical representation. The development of a course of studies is required which will form the centre of an integrated process of teaching from which all specialised and individual activities can freely develop.

There are, of course, innumerable ways and means of conducting a basic training in form development. The main essential is that the course does in fact deal with the primary elements of form and colour which enables a student

to acquire a sustaining grammar. The problems can be designed so that they allow every student to make a contribution to the maximum of his intellectual and emotional ability. From a constructive and analytical basis a student can develop a creative awareness and a questioning attitude to life as a whole and work in particular.'²⁷

This statement for the Royal Festival Hall exhibition is almost identical to an undated course description for one of the Scarborough Summer Schools (Appendix C). In this Summer School statement the first sentence reads:

'The need for objectivity and method in the teaching of modern art is becoming increasingly evident.'

The only other difference in the statements is that Pasmore inserts the words 'scientific' and 'technical' in place of word 'rational'. It is worth noting the emphasis on method, rationality, objectivity, analysis, and for the first time, the phrase 'sustaining grammar' is used. This Summer School statement does outline the following course content, which like previous Summer Schools was to extend over an eleven day period:

'The course has been divided into a developing series of studies and exercises:

1. POINT and LINE studies in straight and curvilinear structure and rhythm.
2. PLANE, AREA, SPACE and VOLUME studies in straight and curvilinear structure and rhythm.
3. TONE and COLOUR analytical studies.
4. DRAWING from NATURE comparative anatomy and structural analysis.
5. TECHNIQUE lecture on synthetic materials and machine techniques.

These studies and exercises have been analysed and worked out in all their dimensional forms through the media of drawing, painting, carving, modelling and construction.'

The last two categories of Drawing from Nature and Technique, represent something of an innovation and they did not feature prominently in the work of Pasmore at Newcastle. These particular courses represented a joint Newcastle/Leeds initiative, and although it is evident that Pasmore was the author, the teaching was a team effort and the course content had

to accommodate the diversity of approach of those individual and talented teachers taking part.

One important point which does emerge from these statements is the necessity for a more objective and systematic approach to teaching for the adolescent and adult student. Although the intuitive and imaginative dimension is not ignored, it is implied that while free and imaginative modes of teaching may be appropriate to the primary school, this mode is not suitable for the adolescent and beyond. Hence the emphasis on rationality and objectivity. This point has to be emphasised in the light of many confused interpretations of basic design teaching being influenced by child art.²⁸ On this point Pasmore stated in correspondence:

'Child art is consciously representational so it had no place in my curriculum. But child art may have been a strong factor at Leeds because of the influence there of Alan Davie, who Thubron coopted onto his team. Davie, Read, Hudson and myself all served together for several years on the selection committee of the annual exhibition of children's art organised by the Sunday Mirror. This exhibition included children of all ages from toddlers to adolescents.'²⁹

Richard Hamilton is quite emphatic that child art had no place in his teaching, and goes further to insist that free expression and subjectivity served little purpose within the adult art curriculum. As previously stated, one thing which Hamilton and Maldonado did agree on, was that Montessori had no place in adult art teaching. Tom Hudson was stimulated by Herbert Read's 'Education Through Art' and researched into child art at the Courtauld Institute and at Lowestoft School of Art where he was Painting Master. Hudson's researches into child art did influence his teaching of students but his own conclusions about the work of children did differ from the post-Marion Richardson generation, whom he felt overemphasised the expressive and narrative elements of children's art,

and neglected the observational and constructive. As a generalisation, those involved in basic design teaching did express the view that a clear distinction had to be made concerning the needs of infant, junior and adolescent children.

One undated basic form course was designed for the needs of secondary teachers (Appendix D), and this is one clear example of the questionable application of basic design principles being introduced into schools.

The justification is as follows:

'The number of children in a yearly intake who are likely to become artists is so small that to gear the curriculum to this minority is not a satisfactory method of introducing art to the school as a whole. Generally speaking, children entering secondary schools have already lost their confidence in their capacity to produce pictures which require specialist artistic skill. Some form of practice is therefore required of a more general character.

By presenting art practice in the form of basic principles, it is possible to place all children on an equal footing free of any prejudice about their ability.'

The course statement then goes on to spell out the content and method stressing the open-ended experimental approach and the examination of the basic elements of line, plane, solid, colour, texture and space. This does raise certain questions, which are not within the scope of this chapter concerning the appropriateness of a course designed for adult students and its application to secondary pupils. It is highly questionable that children, after a period of 'unsophisticated self-expression in pictorial representation' would be interested in the kind of formal analysis proposed by this course (particularly at the lower secondary level). Abstraction is proposed as a remedy for the crisis of confidence faced by most adolescents as they become increasingly aware of their own technical inadequacies in traditional pictorial representation. It is a questionable assumption that all will gain equality of footing

merely by substituting abstract for representational forms. It may be that more children can draw an adequate square than an adequate horse, but sooner or later a new set of criteria have to be devised to measure the competence of the abstract manipulation of form as an alternative to traditional representation. How does the child know if his arrangement of squares is more satisfying or more finely proportioned than the next? As stated by William Varley and Rita Donagh,³⁰ students encountered a crisis in confidence because they were unsure of the criteria, and likewise children face a similar dilemma and are less equipped to deal with it than the eighteen year old foundation course student. If the remedy of abstraction seems over simplistic, it has to be understood within the context of the period when such ideas seemed like a liberating alternative to an elitist academic order.

The formalist assumptions of these course descriptions emanate from Victor Pasmore, but there is a measure of consensus by all the participants in basic design teaching that one must isolate the elements and analyse them with some degree of dissociation from the natural world. In conversation with Victor Pasmore, he was quite emphatic that the elements must be understood in their own terms, stripped of their descriptive and associational roles. In order to emphasise the concrete reality of line, Pasmore fancifully described the possibility of taking a line for a walk within the confines of the picture frame. But why stop at the frame? Why not take the line across the wall and round the room and out of the window? Why not draw a line from Land's End to John O'Groats by suspending a pencil from the back of a motor-cycle, and then erase the line with a suspended rubber on the return journey? By these means

Pasmore tries to instill a consciousness of the autonomy of form. One thing which both Victor Pasmore and Richard Hamilton shared was a conviction that the art education they provided should be objective and empirical. 'Empirical' is a word which Pasmore uses a lot, and at first it is difficult to resolve this term with an aesthetic theory which denies the natural world and insists that art can be composed from within. By empirical, Pasmore means the experimental manipulation of the concrete realities of form. It means proceeding in an experimental manner with no preconceptions, beginning with the objective facts of point, line, shape and colour, and making deductions based on those facts. The student was 'introduced to the palette', to the concrete elements of form in the same way that the music student would be introduced to the scale and principles of harmony.

Course statements, which frequently represent rationalisations after the event, only present a partial view of what went on, and can be positively misleading. The objective, intellectualism, and the emphasis on 'scientific' methods suggests a clinical approach, and few course statements reflect the spirit in which ideas are conceived. Above all, they indicate nothing of the personalities involved. Any teaching situation is bound to hinge on the personality of the teacher and the success of the outcome may owe more to the convictions of the personalities involved than to the course content. This was certainly the case with Victor Pasmore, who by all accounts was a charismatic teacher and a man who communicated his ideas by the sheer force of his convictions. Richard Hamilton, who profoundly disagreed with many of Victor Pasmore's views on modern art, described in conversation, how Pasmore inspired the students with his vision of modernism.³² Likewise,

Matt Rugg recalled a lecture which Victor Pasmore gave on abstract art at the Laing Art Gallery, attended by the mayor and many grey-suited city dignitaries. Pasmore, in his enthusiasm to convey notions about shape, and shape making, passed lumps of clay around the audience, appealing to them to feel the shapes and get some tactile engagement with the forms. In spite of their clay smeared clothes the audience warmed to him and he sold the idea of abstraction by force of conviction. His vision of modernism and the new integration of painting, sculpture and architecture was the theme of a lecture which he gave to the Department of Architecture and Town and Country Planning. In his enthusiasm to communicate his vision of a new order, he was able to brush aside various practical queries and objections raised by his audience, consigning the issues to the past, as having no relevance to the needs of the future.³³ He was a man who inspired a degree of faith in his students, and faith was of the essence in a situation where students were challenged to step into the unknown.

Pasmore's style of teaching was demonstrative, putting his ideas across by drawing on the blackboard. In some respects, Richard Hamilton felt that this was the key to his success:

'It was all to do with the marvelous marks that Victor would make, and he would demonstrate it for hours on the blackboard, and students would gaze at him for hours with wonder and try to emulate and get the idea of what a beautiful shape was . . . they did admire the way Victor did it and the media he would do it in. He got a piece of charcoal and thumped away at this thing until it had the kind of resonance which Victor liked.'³⁴

Rita Donagh, who was a first year student in 1956 describes Pasmore's teaching and the degree of faith which he inspired:

'Victor was doing this extraordinary session once a week when he just tried to make you forget everything you had ever learned about art and start from the beginning. Most of the

time we would be on the floor with big pieces of charcoal not knowing what was good and what was bad. He would come in and say "That's a wonderful shape!" And you would know why just because, somehow, he had distinguished one from several others, and it was that kind of process. It was almost like the laying on of hands - to my memory of it, it was very mystical. Ian (Stephenson) worked with Victor, and I think what was good and important about him was that he was not so extreme, and he would be able to explain things to you which Victor didn't explain. Victor would come in and out and make statements about the new art, and what was good, and show you what was good. It was that kind of process; being shown that certain things had quality and why others didn't, but not explaining why. It was simply demonstrating and training your eye. That's what it was.

He would come in and talk about what he wanted us to do, and talk about line and shape. Then we would spend the whole day on the floor. He liked everything to be done very big and quickly, so we had lots of cheap paper and would be working on the floor. This was very much the opposite of what happened in the other weeks with the other teachers. Then we would put it up on the walls and he would come in and indicate which pleased him. That's my memory of it. It was just seeing, and what he was talking about was form and quality dissociated from references to the world. He had this wonderful way of making one believe it was all worthwhile. You didn't question the fact that it was not rational, and that was what was important for me about it. It was a process that was not to do with the rational. Only he had this way of teaching. Then Ian would spend more time with me and he would be able to explain a little, which helped, because the problem about the inspirational mood which Victor brought with him, was that when he was no longer there, one might, somehow, lose faith. At the end of the day you would see this pile of dirty paper and lose faith'.³⁵

Rita Donagh's account does get to the heart of the matter and it is interesting that her description of what actually took place differs markedly in tone from the course descriptions and their aims. Far from a systematic, objective, laboratory art, we are confronted with the irrational, the 'mystical', the 'laying on of hands', the inspirational and the necessity to maintain faith. This is the language of religion and not science, and from all accounts, her version of events is accurate. Richard Hamilton endorses something of this religious zeal:

'You have to think of it as being of a kind of biblical character. Victor was subject to religious conversion. It was like somebody seeing the light and realising the error of

his ways, and taking up a mission, and his mission was modern art. He had this conviction that modern art had nothing to do with drawing from nature. That it all came from some other mental sphere, and having got his religious conviction, he propagated it with religious zeal and did it admirably. That is why he was successful as a teacher. He was a John Wesley or Billy Graham . . . Well I didn't have that religious conversion. I didn't feel I had much of a role. I just did what interested me . . . On the other hand he couldn't quite fit me into his religious trap which he had got organised for himself. He would never deny my right to make a contribution of any kind at all, but he would be very puzzled by it, and try to figure it out, and try to assimilate it into his dogma, and often wasn't able to.'³⁶

In most respects Richard Hamilton's art, teaching, and personality were the opposite of Victor Pasmore, and they complemented each other very well. When Victor Pasmore instigated his basic form teaching, he brought in Richard Hamilton and Geoffrey Dudley, in order to widen the course to embrace the Design and Sculpture Departments. Richard Hamilton had already created his own course and Victor Pasmore saw him as a natural ally, and far from wishing to integrate him into his particular dogma, valued the contribution which Hamilton could make in broadening the scope of the course. Evidence of Richard Hamilton's early teaching can be best seen in his contribution to 'The Developing Process' catalogue, entitled 'Diagrammar'.

Here Hamilton states unequivocally that the exercises set are rational investigations, and that any expression of artistic personality is of marginal consequence. Spontaneity and intuition had little place in Hamilton's teaching and emphasis was always placed on rational thought processes as a starting point.

'The tasks I set my first year students are designed to allow only a reasoned result. Rarely is a problem presented in terms which permit free expression or aesthetic decision. The student is prompted to think of his work as diagrams of thought processes - equipment which will enable him to derive further conclusions. Artistic personality or manipulative charm is coincidental to the result.'³⁷

Accompanying this statement is an illustration of a series of line prints in which a small piece of lino is cut in such a way that each successive mark and line is printed after each additional cut (Plate 64). The result is described in the following way:

'This cinematic realisation of the time element registers in a clear way the growth of ideas and the sequential aspect of each act.'³⁸

The example quoted is a clear and logical expression of a process and progression. It demonstrates the process of cutting lino, but above all, Hamilton's delight in the transformation of the black square with the white mark, with all the intermediary stages clearly opening out, to the final white square with black mark. The positive/negative aspect of the exercise and the systematic transformation which occurs, fore-shadows the exercises on transformation and projection which formed an important part of his course in the sixties. The next example illustrated in 'Diagrammar' is a flow diagram similar to the iron filing exercise quoted by William Varley (Plate 72).

'In 21 the student is required to position several forms on a sheet of paper. There is then assumed to be a flow from one side to the other - small pieces of paper are stuck on to indicate the response of the flow of forms. The process of revealing the currents and vortices, the high and low pressure areas, requires no aesthetic decision: the position of each mosaic particle is determined only by the logical estimation of the energies developed as a result of the conflict between the even flow and the fixed forms fairly arbitrarily established in the first instance.'³⁹

The diagrammatic exposition of form as the outcome of the forces and pressures acting on it, clearly emanates from D'Arcy Thompson. This source is also the inspiration for the next exercise (Plate 72):

'Students are shown two micro-photographs of sea urchin eggs. One illustrates the first stage of cell division in which the single cell is divided by its own internal forces. The second shows a similar cell being divided under the influence of external forces in centrifuge. The difference is clearly projected by the image itself. 3 is an attempt to create forms implying a similar difference of generating forces.'⁴⁰

D'Arcy Thompson's description of the pressures and forces, both internal and external, acting upon the amoeba clearly influenced the substance of the flow diagrams and cell division exercises.⁴¹

Although D'Arcy Thompson was a constant reference point, exercises with a specifically biological content ceased to play an important part in Hamilton's later teaching. Two further exercises quoted in 'Diagrammar' were, however, to be systematically incorporated into the later course. These were exercises concerned with space filling and positive and negative shapes (Plate 73).

'5 is a space filling exercise. Immersing a drop of cholesterol in water causes a great increase in the surface area of the drop while the bulk remains constant. The need to extend surface results in a protrudence of tendrils which continue to occupy any available space as long as the drop remains immersed. The student is invited to fill space as eagerly as cholesterol complying with the same limitations. The trick is to oppose the natural tendencies of the human hand to repeat configurations - and to defeat calligraphy specific to a personality. Conscious effort is required if restrictive repetition is to be avoided.'⁴²

The object of the exercise is to fill a space in as interesting a way as possible avoiding all the cliches which we tend to lapse into. One begins at this point to detect the influence of Duchamp, in the rejection of sensual and personal modes of working. The cerebral detachment and the avoidance of personal touch or style represents a strong Duchampian attitude. The rejection of sensual and painterly values led Duchamp, after such masterly painterly feats as 'Passage from Virgin to Bride' of 1912, to the adoption of impersonal modes of presentation which could be described as more diagrammatic, and more reminiscent of the engineering drawing than the traditional fine art product which bears the hand written character of the artist. Duchamp makes his point:

'In French there is an old expression, "la patte", meaning the artist's touch, his personal style, his "paw". I wanted to get away from "la patte" and from all that retinal

painting . . . The only man in the past whom I really respected was Seurat, who made his big paintings like a carpenter. He didn't let his hand interfere with his mind.⁴³

Later while he was describing some of his studies for the 'Chocolate Grinder' while he was working on the 'Large Glass' he describes how he evolved an impersonal means of drawing:

'The problem was to draw and still avoid the old fashioned form of drawing . . . Could one do it without falling into the groove? Mechanical drawing was the answer - a straight line drawn with the ruler instead of the hand, a line directed by the impersonality of the ruler . . . I unlearned to draw. The point was to forget with my hand.'⁴⁴

The sentiments of the last statement parallel those made by Hamilton in the cholesterol exercise where the student is urged to resist the 'natural tendencies of the human hand' and to 'defeat calligraphy specific to the personality'. Richard Hamilton admired precision drawing and it is worth noting that Hamilton himself trained as a jig and tool draughtsman during the war and he frequently employed this knowledge and skill in his own work, most notably 'Five Tyres abandoned' 1963, and later 'Five Tyres Remoulded' 1972, which was aided by the use of a computer (Plate 74). During the nineteen-fifties Richard Hamilton's own work seemed to be rejecting painterly values and much of his imagery was sparse and diagrammatic in nature. Something of that spirit of analytical exactitude is expressed in Duchamp's phrase, 'Painting of precision and beauty of indifference.'⁴⁵

The particle diffusion and the diagrammatic exposition of force in the flow diagram exercises relate as much to the imagery of Duchamp as they do the work of D'Arcy Thompson. There is a strange parallel between the enigmatic, poetic and intensely personal pseudo-science of Duchamp's 'Green Box' and D'Arcy Thompson's 'Growth and Form'. D'Arcy Thompson's

book is a work of science expressed with clarity and precision necessary of a work of science, but it is also a work of great literature, described by Peter Medawar as 'the finest work of literature in the annals of science to have been recorded in the English tongue'.⁴⁶ In many respects the clarity of D'Arcy Thompson and the irrationality of Duchamp's whimsical games with science may seem poles apart, but both works do have an extraordinary power to draw you into worlds of their own which offer similarities of experience. There are remarkable similarities between passages in D'Arcy Thompson dealing with metamorphosis and change in the amoeba due to external and internal pressures, and extracts in the 'Green Box' where Duchamp describes the illuminating gas as it passes through the sieves.⁴⁷ Both the work of science, and the mocking, irrational world of the 'Large Glass' offer us new insights and a new vision.

The penultimate exercise in 'Diagrammar' is concerned with positive and negative shapes and their ambiguity and equation. As this exercise formed a part of the later course, this will be discussed at some length in the next chapter. Suffice at this stage to quote Hamilton's earliest statement on the matter:

Most images have dominant forms which, for one reason and another, demand precedence over others. Certain classical optical illusions suggest that some visual situations present a balance of forces which permit the spectator a freedom of choice. 25 is an example of an exercise in which the objective is to produce an ambiguous image. It should be possible to read it as black forms on a white ground or vice versa with equal ease (Plate 75).⁴⁸

Likewise the last exercise in 'Diagrammar', which is concerned with perception, was explored more systematically in the later foundation course, and like the last exercise, will be examined in the next chapter. At this stage Hamilton describes the exercise in the following way:

'26 shows simple juxtapositions of forms from which conclusions can be drawn about phenomena of space perception. Clues for space perception are discussed and the student is asked to make written statements to accompany each drawing he produces (Plate 76).⁴⁹

The demand for a written comment precludes an element of spontaneity and intuition and this is consistent with Hamilton's cerebral and rational approach to his teaching. It was this intellectuality of approach which possibly accounted for Harry Thubron's objection to the inclusion of 'Diagrammar' in 'The Developing Process' catalogue.⁵⁰ What is apparent in the catalogue, is the diversity of personalities involved, and one needs to be mindful of hanging on too seriously to every statement as final and revealed truth, when certain statements were made after the event and, in the case of Terry Frost produced under a degree of duress.⁵¹ Hamilton's contribution represented a selection of exercises which were nothing like a systematic programme and there was little logical link between those exercises inspired by D'Arcy Thompson and those concerned with perception. There is, however, an intellectual consistency which Hamilton brings both to his writing, painting and teaching.

Unlike Pasmore, where there is a wide gap between his written statements on the objectivity of intent, and the intuitive actuality of his teaching, Hamilton does present a rational objective correspondence between his writing and teaching. As in their art, so in their teaching, Pasmore and Hamilton represented polarities. Pasmore involved his students in a direct and intimate way in his own researches into abstract form, whereas Hamilton went to some length to distance his teaching from his own work. How far Hamilton's own art was distanced from his teaching is a contentious issue. He is quite adamant that the teaching of 'style'

had no place in his programme and this certainly is true, but his own creative attitudes and preoccupations were bound to indirectly influence his teaching. What he passed on to his students represented a set of priorities which came directly from his experience as a painter and in this respect one cannot disengage his personality as a painter from that of teacher. The figurative and representational content in the latter part of his course, particularly those exercises relating to collage and object analysis, can be seen to relate to his own work, and he admits that his own interests were bound to colour his teaching and influence certain propositions which he put to his students. However, it is also true that what he was doing as a painter was kept under wraps, and was only known to a few chosen initiates. It was also the cause of some resentment that students at the Royal College of Art were certainly more au fait with Hamilton's work than the Newcastle students who had to read about it in the Sunday colour supplements and art journals. When asked by Peter Sinclare to explain the gap between his own work and what he taught, Hamilton stated that:

'I decided that there wasn't any point in teaching people how to make art. You can teach people how to think, but you can't offer them any ready-made styles. There is no value in that kind of teaching which provides styles to follow or even examples to follow. I never showed students works of art. Victor Pasmore did not take that approach. You could give people a kind of vocabulary and you can suggest that there are ways of finding out the grammar, the language by which works of art are made, and that is all. All my so-called exercises and problems were posed simply and solely to provoke people's thinking mechanisms of picture making.'⁵²

Where Richard Hamilton's teaching differed from that of Victor Pasmore, was in the matter of style. Richard Hamilton would claim that Victor Pasmore's method, in spite of his claim that only the beginning was determined, did produce a predictable style of abstract art, whereas his approach with its emphasis on method and vocabulary did not.

'I think we (Bill Turnbull and myself), were trying to give people the abilities of making paintings without giving any indication as to the kind of usage to which those ideas and systems should be put.'⁵³

Hamilton would claim that it was the job of the teacher to develop the quality of thought, method and vocabulary, but ultimately the decision of what to paint and sculpt and how to paint and sculpt was left entirely to the student. One way of avoiding teaching methods which determined outcome was to provide as wide range of visual vocabulary as possible.

'The distinction between the grammar that I was teaching and the grammar that Victor was teaching, was that his was largely directed at formal considerations, whereas I tried at the latter stages to introduce all sorts of other aspects like ideas about figuration, and what happens given certain actions. There was a mad kind of lesson where people were throwing darts all over the place, and dropping things from a great height on to bits of paper, just to understand what chance meant. The basic course is thought of as fairly rigid, concerned with a fairly limited vocabulary of forms, but I thought that it could extend over a wide gamut of language which included figuration at one end, and randomness and chance at the other, as well as everything in between.'⁵⁴

Hamilton was aware of the danger that a course based on formal exercises can be misread as a recipe for abstract art, and it was not his intention that the basic course be a grounding for one type of art:

'this leads to an unnecessary confinement of vocabulary for which the only cure is the widening of the basis of the visual language. In art school training, at least, it seems to be imperative to bridge the gap between the disciplines of the life room and the rigours of basic design. The links now being attempted are usually of two kinds, those designed to stimulate observation: analytical drawing, visual assessments of construction etc., and those who seek correspondence between abstraction and visual appearance: deriving rhythms, point relationships, linear organisations from a given scene. The base could be widened too in another direction, through exploitation of imagery as such - the study of material which is dependent on psychological and sociological overtones for its effect.'⁵⁵

In this passage, Hamilton draws attention to the uneasy split between the abstract autonomy of basic exercises and the traditional academic naturalism of the life room, and indicates a middle ground where the

students abstracts from natural appearances as well as the area of figuration with its psychological and sociological dimension which, to some degree, embraces those interests of Pop and the Independent Group. Hamilton was concerned with not only exposing the student to a wider visual vocabulary, but he also had a broader vision of art education. He was an educationalist in the broadest sense of the word because he regarded the intellectual training of the artist as not just an education for art, but an education for life:

'What I am concerned with is producing people with good minds, who are capable of seeing society as a whole, trained to think constructively though not necessarily productively.'⁵⁶

Richard Hamilton's foundation course was designed to provide the intellectual grounding which would equip the student for self-sufficiency and self-direction. In his essay 'About art teaching, basically', he states that traditional teaching was concerned with method, with imparting knowledge, techniques and standard procedures. Modern art has rendered many of these old disciplines irrelevant, and to some degree modern art education has been plunged into a void in the absence of these methods. Because art cannot, and is not amenable to logical and systematic analysis there has been a natural and cautious resistance to any notion that intellectually disciplined methods are suitable for the training of artists. Hamilton, like Pasmore saw the obsolescence of the old academies, and like Pasmore sought a new objective base for art education, and he suggests that one way forward is the 'deductive' approach of the Bauhaus artists who did bring a degree of intellectual rigour to their teaching. Hamilton describes the Bauhaus method as 'deductive', vaguely inferring that more traditional ways of working are 'inductive', but he fails to qualify these terms, and all we are given is a descriptive account of what he feels the 'deductive' approach to be:

' . . . the development of practical disciplines which will promote orderly and logical modes of thought - the ability to analyse action already taken to make deductions about a future course of action and to draw conclusions from the final product which will project a further series of self-directed acts.'⁵⁷

Although the Bauhaus methods represented a clear alternative to other traditional academic models, they had not been applied to the training of fine artists, and Hamilton notes a justifiable resistance. He also points out the danger of such a course leading to stylistic formulas and cliched mannerism which can be as dreary and repetative as the old academic forms which they replace. Hence Hamilton's stress on the quality of thought process and avoidance of method. In short, he advocates a process dominant method:

'One is reluctant to place too high a value on individual products of a basic design course. A student is expected to make a great many marks on a great many pieces of paper. Many of the examples have little intrinsic merit, their interest lies in the contribution they make to a series of considerations. They are often intended only to establish the large range of possibilities rather than narrow down on an optimum. The value of each lies in the directness of the visual statement - the assistance it gives in the clarifying of a situation, the way in which it presents the situation for analysis. The student is always prompted to think of his work as diagrams of thought processes - equipment which will enable him to derive further conclusions. On the other hand, it is also necessary to avoid the implication that the work is valueless once the analysis is made. The tool does not become redundant so it is essential to engender in the student a respect for the sometimes unprepossessing aid - his diagram. While they are not art, they have considerable value as a record of study and can form, as a collective whole, a coherent survey of his development. Individually the products tend to be depersonalised - as a portfolio they express a clear personality,'⁵⁸

As previously stated the notion of a drawing being the 'diagram of thought processes' comes from D'Arcy Thompson and Marcel Duchamp. The use of the word 'diagram' lays stress on the function of the drawing rather than artistic personality, as well as emphasising process rather than the work of art as an end in itself. When Marcel Duchamp painted

his picture of the 'Coffee Mill' (Plate 77), in which he presents us with a diagrammatic rather than a representational view, he explained that he wanted to paint, not an illusion of a coffee mill, but a painting about the process of grinding coffee. The diagrammatic mode depersonalises the work putting it 'to the service of the mind' and minimalises self-expression. The depersonalisation of the art work reaches its ultimate in Duchamp's readymades, and Hamilton himself adopted certain procedures which distanced himself from the art work, such as the set of instructions which he telephoned to Ed Paschke for 'Chicago Project I'. Here Hamilton gave Ed Paschke a set of instructions for choosing a picture postcard of Chicago, blowing up a section, and transferring a retouched image to a canvas. The result is unmistakably Richard Hamilton, and shows that style and character in a work of art are probably more a product of the mind, than 'la Patte' or personal touch. When Hamilton saw his own retrospective at the Tate in 1970, what intrigued him was the fact that although he went to some pains to allow such factors as style and colour to be determined by the concept in hand, nevertheless a distinctive style and taste did emerge, reinforcing his own observation on student work that 'products tend to be depersonalised - as a portfolio they express a clear personality'. Hamilton's emphasis on clarity of thought and objectivity of procedure was all a necessary part of the demystification of the work of art, and could be seen as a continuing aspect of twentieth-century thought underlined by Wittgenstein and the like, that we should concentrate our minds on clarifying the means and set dogma and preconceptions aside.

Richard Hamilton had a Duchampian distaste for the reverence and mystification of a work of art, and intuitive modes of action were

relegated to the margins of activity. However, he does regard the training of sensibility as a part of the educational process, but this must be firmly rooted in the deductive process:

'Teaching of the arts must also engender creative sensibility - an intangible quality which arises out of a careful nurturing of the two pedagogic weapons, a demand for solutions to specific problems and training in the presentation of solutions.'⁵⁹

For him, sensibility was the necessary by-product of a thought process and it was the teacher's job to activate the thought processes. In an interview with Victor Willing, Hamilton states that the first job is to eradicate preconceptions, and the biggest preconception of all, is that art is not something which you think about, but something you feel. It was the abolition of that preconception which was to dominate his course.

Course Content

For the sake of coherence, I will not attempt to make a rigid separation between the work of Pasmore and Hamilton in the earlier stages of the course. Certainly the figurative content of the later course can be clearly attributed to Hamilton and the formal elements of the earlier course to Pasmore, but both participated in the initial stages and it is not possible to clearly indicate who was responsible for what.

Attribution is difficult and will be made where possible, but it is important to point out that Pasmore and Hamilton were not the only teachers involved, and one cannot underestimate the contributions of Geoffrey Dudley, Ian Stephenson, and studio demonstrators such as Matt Rugg and Rita Donagh. Each exercise will be taken on its own merits, and where there is a clear date, or a particularly identifiable interest, then personalities and influences will be located as a matter of course. There are various surviving syllabuses which indicate the changing and developing nature of the course, and I will deal, as far as is possible, with each section based on two syllabuses, one at the point where Pasmore left in 1961/62 (Appendix F), and the last year that Hamilton taught the course in 1965/66 (Appendix G). Although this may appear to give greater exposure to the work of Hamilton rather than Pasmore, the two syllabuses do represent approximately the full range of course content and they do provide a sound framework to study each element of the course, including the work executed before 1961.

The earliest surviving syllabuses of basic form teaching are undated, but Lawrence Gowing's name appears on one of the syllabus descriptions (Appendix E), and they almost certainly date from before 1958 when

Lawrence Gowing left. These courses are short and run for a period of two or three weeks. Some of them take place in the second year (Appendix E), and support Pasmore's contention that the course was not envisaged as a full first year foundation course. These short courses (Appendices E, F & G) were formal in content dealing with point, line, shape relationship, area division, colour, construction and volume. The approach was both 'abstract' and 'visual', by which I would assume that equal weight was given, in certain exercises, to observation and visual analysis, as well as the pure abstract manipulation of form. It is interesting to note that the early point and line exercises employed the use of string and matches as an observable source for investigating point and line configurations. Points are investigated as abstract and visual phenomena. Lines are observed from nature and investigated in the abstract through their straight, curvilinear, and continuous aspects. Area divisions are observed and explored in symmetrical and asymmetrical abstract form. Open shapes are analysed in still life form and then studied as abstract, rectangular, irregular, free and curvilinear form. Construction is explored purely abstractly and developed through drawing, while volume relationship is tied in with still life study. By 1961, the course had developed into a full first year foundation course and timetables show that precise activities are programmed in periods of one or two weeks according to the nature of the work. After a week or fortnight given over to a particular problem, all the students would congregate for a group discussion or 'crit' (Plate 78), which would be attended by all the staff concerned. The 'crits' under Hamilton's direction, set the tone of analytical consciousness which characterised the later course.

Line

Most years in the latter stages of the course began with the investigation of line which was probably less daunting than the minimal point as a starting point for a student straight from 'A' levels. Usually, these elements were investigated through observation and invention, so that one was given scope for free composition or visual analysis. As a rule, Pasmore's approach was concerned with abstract composition, and, with the exception of colour, little reference was made to the outside world. Most of the visually analytical work in the earlier years under Pasmore's direction can be attributed to Ian Stephenson. Many of the surviving exercises from the Pasmore period do express a highly formal or architectural quality and concern problems of pure composition. Pasmore's analogies between art and music are apt, and one of the first exercises which students had to consider was the composition of a single line. The composition of this single line could be analagous to a simple melody. The problem for the artist as well as the musician was to achieve a sense of balance, harmony and rhythm, while avoiding repetition and monotony, on the one hand, and confusion on the other. Plate 79 is appropriately described as a 'decided line' giving a confident solo performance as it divides the page from top to bottom. The line is undifferentiated and its weight is uniform. The hard impersonality of this line is unrepresentative of most student work where there is a natural inclination towards the modulated line. Other single lines can be seen in Plates 80 and 81 where deceptively simple and uncomplicated linear progressions display an unusual degree of refinement in their expression of highly sprung tension. In contrast Plate 82 shows complexity and vigour which sustains a coherent rhythmic development while miraculously

avoiding tangle and confusion. According to Richard Hamilton this particular study was based on an examination of the convolutions of string:

'An exercise to develop observation as well as appreciation of the graphic qualities of the drawing instrument.'¹

Lines would have to be invented and analysed according to various qualities of slow or fast speeds, tension and relaxation, cursive and angular lines, as well as considering line relationships and their impact on the surrounding space. Many of the surviving line exercises from the Pasmore period do explore highly formal and architectural qualities. Moving on from a consideration of solo lines, the relativity of line and the compositional aspect of line would be examined. Plate 83 demonstrates a formal exercise in linear composition in which students are asked to investigate the arrangement of lines, not only in relation to themselves and the intervening spaces, but also in relationship to the perimeter line. Plate 84 exhibits a similar compositional problem of arranging lines in such a way that the spaces and intervals between them are as important as the lines themselves. In Plate 85 the element of interval and proportion is isolated in a more rigorously formal manner with the student dealing with more measured ratios and modules. Under the upper series of lines and intervals the student has written:

'Approximately $1\frac{1}{2}$ " is repeated 4 times.
Approximately $1\frac{1}{2}$ " is repeated 3 times.'

Under the lower register of intervals is the statement.

'Approximately $1\frac{1}{2}$ " is repeated twice.
Approximately 1" is repeated twice.'

The varied proportions, weights and thickness of the verticals sets up a sequential shifting and movement which is reminiscent of the optical impact of Pasmore's transparent relief constructions of 1960-61. (Plate 86).

A less passive investigation of interval and dislocation can be seen in Plate 87 where the regularity of the top left line of matchstick lines gives way to a lateral progression of increasing derangement and dislocation. One reads the sequence from left to right as if it were a sentence which rises to a noisy cacophonic crescendo at the end of the paragraph. Its logical and sequential nature recalls the cinematic progressions in Richard Hamilton's 'Diagrammar'. Plate 88 shows a similar demonstration of line displacement through the collision of the black triangle which kicks off a sequence of angular rhythmic linear developments in which variation of interval, through impact, concentration, relaxation and expansion of space, successfully holds our attention. The very physical and aggressive nature of this drawing illustrates very well the concrete realities of line which Victor Pasmore stressed. The force and weight of the black triangle, in contrast with the scattered disarray of lines is not dissimilar to the imovable object in Richard Hamilton's flow diagrams. Some exercises demonstrate the equation between the lines, and the spaces and intervals they create. Plate 89 shows how a series of curved lines articulate the flat plane of the paper, creating spaces and intervals which interpenetrate in a fluid manner similar to Mondrian's apple tree studies, or more particularly, Pasmore's 'Abstract in Black and White', 1958, or 'Line and Space No. 22', 1964 (Plate 90). Plate 91 also shows an arrangement of lines with a strong directional flow which contrasts with the other linear configuration which is characterised by equilibrium and harmony.

The rhythmic progression and disposition of charcoal lines in Plate 92

reflects such works by Pasmore as 'Curvilinear Motif', 1959-60 (Plate 93). Of Plate 92, Richard Hamilton states:

'Linear study - isolated linear fragments which retain the identity as elements but which cohere as a group.'²

Plate 94 is a compositional drawing executed with immediacy, in which four related, but contrasting lines, break up the rectangular space with differing speed, accent and weight. The rapid flourish of two lines are contrasted with the ragged, jagged, angular, heavy accents of the other. Plate 95 shows a compositional arrangement of straight and curved lines described by Richard Hamilton as:

'Linear study - a group of disparate linear units with implications of form development, i.e. when does a line become a shape?'³

Similarly Plate 96 displays a degree of ambiguity where the thickening of the line, and the closure on itself, produces an equation of form, line and shape which has a positive/negative dimension.

Under Richard Hamilton's teaching, line exercises were usually initiated on the basis of observation. Usually students were presented with pieces of string and wire to draw as can be seen in Plate 97. Plates 98 and 99 show various samples of wire which would be the starting point for the work, with the student beginning with fairly accurate analytical drawings, not only of the wire itself, but also the delicate shadows which would echo and accompany the main theme. It was through observation that students would avoid repetitious and clichéd forms. Visual analysis was a natural check on stereotyping.

According to David Thistlewood, Plate 100 is a response to the question, "when does line become shape?"⁴ This drawing is undoubtedly successful in establishing an exciting tension and variation of interval which in turn creates interesting shape relationships, but much of the enjoyment of the work is in the quality of the line. It is not simply an intellectual solution to a problem and one cannot ignore aesthetic judgements involving quality. The variations of line; hard line, soft line, thick line, heavy line, smudgy line, thin line, sharp line, with all the variations of weight, direction and accent; all contribute to the overall richness of the work. Occasionally, quality, even beauty, transcends the problem in hand. Pasmore's demonstrative way of teaching was certainly concerned with qualities of mark making, and even Richard Hamilton who denied the importance of graphic qualities and manipulative charm, was not averse to recognising beauty as a marginal bonus.

Most of the linear exercises referred to so far have little reference to the outside world. This undoubtedly is the case with Pasmore's teaching but Ian Stephenson and Richard Hamilton were both concerned with visual analysis and did direct their students to look selectively and searchingly at the objective world. Plates 100 and 101 are possibly line studies from trees and the life model. There is a particular myth that Victor Pasmore banned the life model, but this is not true. There is no doubt that he regarded life study as inappropriate for those students who wished to become abstract artists and he did occasionally discourage students entering the life room. For Pasmore, the life model, with its association with academic training seemed irrelevant to the language and structure of modern art. It had become a symbol of the old art

education. Perhaps Pasmore's rejection of life study may have been a symbolic rejection of his earlier artistic persona, as his Euston Road painting had been so closely identified with the model (and for many students Wendy Pasmore's presence was a living reminder of this). However, students did attend life classes, and under Richard Hamilton's direction the life class became an integral part of the foundation course. Having had an academic training exposed to the full rigours of life drawing at the Royal Academy Schools, coupled with his growing figurative interests, Richard Hamilton took a very different view. Plate 102 demonstrates the problem of arranging two or three selected lines which are complete in themselves, but also relate to each other in a tight and harmonious unity. A similar problem is tackled by Alwyn Watson in Plate 103 where the line shows greater diversity in weight and accent, but above all, illustrates a thinking, searching process as certain lines are faintly mapped in, while others are emphatically stated. This is a drawing which expresses thought process. In 1963-64 Rita Donagh, in her capacity as Studio Demonstrator, taught the weekly session in the life studio and the products exemplify her thoughtful and sensitive teaching. All the weekly sessions in the life studio were related to specific aspects of the course and the results were highly selective, being concerned with point, line, area division and so forth. Life drawings were very rarely concerned with anatomy and for some, this represented a negation of the whole purpose of life study. However, from the point of view of the exercises in hand, the application of these investigations to the model did represent a considerable challenge in relating abstract concepts to the visual subtleties of the model.

All the foundation course exercises, where appropriate, were extended into three dimensions in the sculpture studios. Following a week of line analysis in two-dimensions, one week would be spent making linear structures with wire. Teaching in the sculpture school was carried out by Geoffrey Dudley, and later by Matt Rugg and Derwent Wise. Because most of the surviving work which could be conveniently stored was two-dimensional, and only a few three-dimensional pieces were photographed, the vast majority of the work which I shall discuss will be two-dimensional, but this is not to suggest that what occurred in the sculpture studios was less significant. What I write is determined by the surviving evidence and the vast majority of that is two-dimensional. Plates 104 and 105 demonstrate line exercises carried out in the sculpture school. Geoffrey Dudley explained that while Victor Pasmore and Richard Hamilton were concerned with line from the point of view of quality and value, he was more concerned with the physicality of line and material. Students would be encouraged to take wire, or different metals and different sections, and twist them, beating and drawing them out, moving towards an understanding of line in terms of material. This point is endorsed by Matt Rugg:

'If one was working in line, people would make linear things in the sculpture school and they were quite happy to bang out lines from bits of metal and wire coathangers. It was a very singular activity that depended on where it fattened and where it thinned and changed section . . . all that kind of thing which would hardly seem, in the current climate (1982), to be something you could ask a student to spend a day doing.'⁵

It was a very singular activity, and if line exploration for two weeks seemed a daunting task, then point, the most elemental and concise component of the artist's vocabulary, seemed to stretch ingenuity to the limit.

Point

The elemental aspect of the artist's vocabulary expressed in the writing of Klee and Kandinsky had an indirect influence on the teaching of Victor Pasmore and Richard Hamilton. Their writings raised a degree of consciousness and opened up the possibility for other artists to proceed along similar lines, but both Pasmore and Hamilton had to move on the basis of their own experience and creative interests.⁶

The simple act of putting a point or mark on a surface had far more to do with quality, and how those marks changed and affected that surface, than with the more conceptual and mystical speculations of Kandinsky, Klee and Itten. Where point groupings are tackled on a conceptual level, they owe more to Duchamp than the Bauhaus teachers. In his very early works like 'Induction', Hamilton returns to first principles and investigates the simple act of mark making:

'What is the simplest mark you can make? A spot on a canvas. What does it do? Then it was simply working on a blank canvas and make one mark and look at it, and wonder what decisions you could make about the first indication and delineation, and then try and build from there.'⁷

From the point of view of quality, economy of means, and surface articulation, Cézanne was the mark maker par excellence, and in this respect, his influence was greater on Hamilton than Klee, Kandinsky, or even Duchamp.

Outside the world of art one must return to J J Gibson and D'Arcy Thompson. In one sense the point is the basic unit of vision if we accept that vision is made up of points of light, and that the rod and cone receptors in the eye make up that mosaic of point grouping within

the eye. J J Gibson described the constant changing nature of those photosensitive cells in terms of the electronic sign consisting of light bulbs which are activated as messages scan across its surface. More recent research by S W Kuffler, J Y Letvin, R L and K K De-Valois, T N Wiesel and D J Jubel, confirm the role of neurons in the retina and the brain, as spot receptors sensitive to specific colours.⁸ The point in the perceptual world, and the idea that the shifting and changing aspect of vision can be mapped out by means of point location, is graphically expressed in 'Trainsition', where Hamilton's point notation sparingly describes the sensation of movement, focus and rotation. The point as atom, molecule or particle has been seen in the flow diagrams of 'Diagrammar'. Notions of cell division, the influence of Seurat's Pointillism, and the general atomised nature of Ian Stephenson's paintings, all had some bearing on the perception of the point. The cell, or point in the natural world, stemming from his researches for 'Growth and Form', was constantly to feed back into Richard Hamilton's teaching. Many of the point and point grouping exercises are illustrated by the phenomenon of the division and multiplication of the cell (Plate 106). Richard Hamilton's early lecture slides consisted of microscopic imagery of point grouping in the natural world showing examples of Thames water and Racemic Acid Dihydrate, an image stemming from his earlier investigations into crystallography.

To begin with, most students would be simply concerned with making points and marks and distributing them over a surface. They were exercises in point location and occupation of a two-dimensional space, but very quickly students would be aware of how soon, and how dramatically circumstances altered as each successive point is added. One point would

instantly transform a blank space by destabilising the passive square or rectangle if the mark is off centre. The addition of a second point would establish a new relationship and an element of directional axis. As points accumulate, certain distinct lines and directions occur as well as concentrations which suggest mass. As Richard Hamilton states:

'Study of points leads rapidly to two alternative concepts. A point can move so that it leaves a residual path which is a line, its locus. Or points can remain discrete units which group together creating forms by differentiating populated space from void.'⁹

Many of these point exercises, like the line exercises, are ultimately concerned with composition and space filling. As the points multiply, consideration is given to the spaces and intervals created, whether they fill the space in an interesting way, and how the emerging configuration or constellation relates to the enclosing rectangle. Above all, the point exercises are about the interplay of directed tensions.

Some of the point exercises deal with regular symmetrical patterns where changes in weight and tonality suggest differing spatial relationships and changes of the rhythmic pattern. Plate 107 is captioned 'Decided dot: obstructed rate of movement', demonstrating a linear progression of movement between several coordinates, creating a satisfying contrast between symmetrical and asymmetrical dispositions of points. The use of symmetry and finely graded tonalities give these examples optical qualities which overlap with some of the exercises more specifically directed towards problems concerned with perception and illusion. Most exercises were carried out in a less formal and systematic way being concerned with the quality and disposition of the mark. To use Hamilton's terminology, Plate 108 demonstrates how a series of varied tonal points populate a given space accumulating density and

concentration, while the locus of the points in Plate 109 suggest a movement towards linear expansion. Plate 110 simply shows an intriguing disposition and concentration of elements, not unlike the grainy marks which make up a photographic image.

Many students became fascinated by the juxtaposition between regular and symmetrical arrangements and random patterns. Plate 111 illustrates a pleasing equation between the regular and random, as well as a balance between positive and negative factors. The use of chance methods of point grouping was a very important development reaching something of a climax in 1963 and 1964. Exploration of random elements in art was not just a search for novelty, or simply another means of mark making, but indicative of the intellectual climate of Newcastle. Certainly Richard Hamilton's deep knowledge of Marcel Duchamp and the chance imagery which permeated his work had some bearing on this. There was a strong interest and awareness of anarchic Dada and Surrealist traditions embedded within the department.

The chance methods which Duchamp used in the 'Large Glass' included the '3 stoppages etalon' which consisted of three meter threads which were dropped onto a surface from a meter in height, thus allowing gravity and air currents to determine the final convolution of the form. The 'Draft Pistons' in the Bride's domain were formed by square pieces of gauze which were allowed to hang from a line and assume random formations. Both these examples demonstrate deformation of the absolute in terms of form and measurement, not so dissimilar to the Cartesian grids which D'Arcy Thompson employed, and which were so important in the transformation and projection exercises. More directly related to the point exercises were

the 'nine cannon shots' consisting of holes drilled into the top right hand corner of the glass where paint dipped matchsticks were aimed and fired from a toy cannon.

Plate 112 shows a point grouping exercise determined by the fall of drawing pins:

"Thrown quickly across the paper, and secondly, dropped from about $1\frac{1}{2}$ " above it.'

An exercise by Gillian Hargreaves recalls the recipe for Dada poetry, by Tristan Tzara, where he suggests that in order to write a poem, one must choose a newspaper article and cut out the words, placing them in a bag, and write out the words as they are randomly drawn from the bag. She combines a regularly structured pattern with indeterminate elements in Plate 113, which is captioned:

'Random forms on deliberate forms: Picking out the 'Is' in newsprint.'

Like Duchamp's cannon shots, Hilary Glyn Jones' drawing in Plate 114 shows a formation of dots established by pennies thrown from a central point. Plate 115 by Susan Carter is a chance exercise using nuts and bolts which by virtue of extension into shape formation ambiguously demonstrates a change in emphasis.

Perhaps the classic combination of chance permutations of the point or dot is the throw of the dice, and several students found that these exercises could profitably extend into the sphere of games. Awareness of Duchamp's 'Monte Carlo Bonds' and his brief investigations of the game of Roulette, influenced many students thinking in this direction. Games of

chance, or games involving the use of projectiles such as darts, or cricket balls, all suggested possibilities. Most of these developments took place under Richard Hamilton's direction and represented another manifestation of his desire to generate activity which had no predetermined end. It was a loosening up process; a means of finding out what would happen as a result of certain actions. Indeterminacy and aleatory systems from the I Ching to John Cage were major concerns, and many became involved with the paradox that the most predictable ends were determined by the most random means. The unpremeditated and automatic methods employed by Jackson Pollock, for example, produced the most foreseeable results.

Chance can be used not only as a means of producing unexpected point relationships but also determines quality and variety of mark. Plate 116 shows the diversity of shape, density and quality of a number of spontaneously executed charcoal marks. Kandinsky in 'Point and Line to Plane' distinguishes between the abstract or imaginative point, *comme* which is ideally small and round, and the point in its material form which assumes unlimited shapes.¹⁰ Later, Kandinsky also deals with the material point as the product of the action of tools on a given surface. Quality of mark would have been the dominant concern of Victor Pasmore and the evidence of his own preoccupation can be seen in his earlier 'Pointillist' works such as the 'Hanging Gardens of Hammersmith', 1944-47, 'Garden in Spring', 1947, 'The Gardens of Hammersmith', 1948, and 'Oval Motif (Pointilist)', 1957-60 (Plate 117). All these works exemplify point and line relationships abstracted from nature, and in the case of 'Oval Motif' (Pointilist), the logical autonomous development to total abstraction independent of nature.

Quality of mark was investigated in media other than pencil and charcoal. There are several surviving examples (Plate 118) which show point constellations achieved by random flecks, drops and sprays of paint. This is likely to reflect the teaching of Ian Stephenson who's own work at this time was described as a process of advancement from 'point to cluster to cosmos'¹¹ (Plate 119). These very painterly presences of point formation also bear witness to the fact that Ian Stephenson was trying to convey painterly values which both Pasmore and Hamilton were, at the time, represssing in their own work. Pasmore was working on constructions and Hamilton's work was going through a sparse, diagramatic phase where odd bursts of painterly expression were very exceptional. Later, after Hamilton left Newcastle in 1966, Ian Stephenson was to take over the foundation course and extend some of these ideas into an exercise which became known as 'media and measure', which was to do with painting and the state of the media the painter uses in its solid, liquid or gaseous form. Plate 120 is an example of an investigation of the distribution of the media and its consequences. The written notes are as follows:

1) Surface Texture

For figures 1, 2, 3, the same amount of ink was used and dropped from a fixed height. No 1. The surface was covered with a smooth film of water. By comparison we can see that water allows for maximum spreading of medium and even spreading. 1 drop covered 19/25 units approx. of 100 squares each, i.e. 4/5 approx.

2) Same amount of ink dropped onto a surface covered with oil (thin consistency). It obviously has little capacity to spread because the oil is virtually non-absorbant. Flow is restricted to one unit of 100 squares. 1/25- ink over covered surface, which will of course vary with different thicknesses of oil.

3) Ink dropped onto powdered surface. On hitting the surface much more impact results. The ink is dispersed in all directions but in separate and self contained

globules. Each globule has the same intensity as the next. Surface covered is little but wide, approx. one globule to each 100 units.

Intensity of Medium

If a measured amount of ink is dropped on two identical planes from the same height but with different intensity, the result is different. a = one drop of ink to 10 water. b = 20 drops of ink to 1 water. B is much more self contained and tidy, but A is much more eager to spread. This happens because B is a heavier liquid and does not have the capacity to spread like A.

Height

A and B are exactly the same intensity and amount of ink. A has been dropped from 6" and B from 4 $\frac{1}{2}$ ". The result is surprisingly similar. B is noticeably larger but one would expect it to be more. The only other difference is that A is slightly more self-contained. This experiment shows the importance of intensity distribution. One can therefore deduce a formula.

Standard formula $\frac{3}{7}$ = Height over area covered.

Composition of Surface

- 1) Corrugated surface: because of its verticality the ink is forced in a vertical direction and the concentration of ink is found at the extremity of the concave + convex areas - that is A + B areas.

There is little horizontal spread as expected.
(in 1, 2 and 3 the surface is wet).
- 2) Convex surface (using two globules of ink) but using same height as no. 1 & 3. There is a wide distribution of ink because the shape forces its direction i.e. downward. However, if one looks closely one can see in the ring shape in the centre block, and so the ink must have travelled upwards to some extent also.'

These notes express something of the thoroughness with which these investigations were carried by some students, but the analytical, technical and scientific nature of that study, should not detract from the essential concern with quality and beauty of marks and the nature of the media which determine them. (Plate 121).

The point is manifest in microcosmic form, as seen in the atom, the cell, microcosmic studies of Thames water, racemic acid dihydrate, and the example of the nitrate forming module in Kandinsky's 'Point and Line to Plane', but Kandinsky also illustrates the macrocosmic manifestation of the point in his example of the star cluster of Hercules. These notions of the all permeating point, from zero to infinity are well expressed by Ian Stephenson in the following statements:

'The immaculate conception . . . Macro-mecro-micro speculation in the comparison between the two extreme states, in degrees from zero to infinity both ways along the scale from man scale to mecro state, relates to the practice of reparticulation . . . Atomicosmic impurity, the coincidence of stippling and the animation of the inanimate. 1963.

Real randon response rejects
compositional certainty completely,
dejects design determinism
into indivisible indeterminism instead.
An atomical application
utilising ultimate units
pioneers particle painting.
Quantity = quality physicalyrical
Cf. cubofuturist configurative creationfields.
Spectacular space/particular space. 1964.¹²

The decisive influences on Ian Stephenson were Seurat's Pointilism, Cubism and Futurism, but the imagery and word play in those two statements are reminiscent of Duchamp. Point imagery occurs frequently in Duchamp's 'Large Glass'. The elemental, vaporous scattering of the spangled illuminating gas, approximates in its movement the flow diagrams of Richard Hamilton and later, in 'The Green Box', those spangles which meet the nine random point groupings of the cannon shots after forming a:

'sculpture of drops (points) which the splash forms after having been dazzled across the oculist charts, each drop acting as a point and sent mirrorically to the high part of the glass to meet the nine shots.¹³

Stephenson's own particle painting alludes more to the droplets, spray,

spume, snow and vapour of Turner and Constable, and he is proud to claim his place within that English tradition.

The point exercises were less amenable to direct observational and analytical drawing, being more conceptual in nature, rather than yielding readily to observable facts. Certain drawings display ideas about the breaking down and the measurement of form. Points observed in nature mark intersections and termini, or changes of direction, frequently inviting connecting lines. One surviving life drawing (Plate 122) by Susan Braithwaite is a successful example of point analysis, in which the points have an autonomy and independence from the human figure and are arrived at with a refreshing directness, unlike the 'dot one carry one' method of Euston Road life studies.

Shape

Shape exercises were divided between shape making and shape relationship. Already, in the point exercises students would reach a stage where an accumulation of marks would create a mass or shape (Plate 108), and likewise, in the line exercises, intervals between lines generate shapes, and as soon as a line joins back on itself, it creates a shape (Plate 96). The process of shape making has already been anticipated in the earlier work, and more importantly the notion of building a form from a central point outwards. Both Pasmore and Hamilton gave great stress to the idea of feeling and searching towards the solution of a problem, rather than beginning with predetermined ideas. Rather than draw a line round a shape, the shape should evolve as the natural outcome of the process of making. For this reason, the modelling of, and accumulation

of mass and form, was regarded as a preferable procedure to the reductive, or carving method.

Perhaps the most appropriate example of shape building on this method came from the sculpture school where Geoffrey Dudley would ask all students to build a cube out of clay (Plate 123). Matt Rugg described how the students would build up this six inch cube slowly and carefully, working it out, measuring it, plumbing the sides, feeling the surface, pinching the form, until a perfect cube was made. What mattered was not so much the successful completion of a cube, which could have been cut quite quickly and efficiently with cheese-wire, but the whole experience of making and feeling the cubeness of the cube. It had to be done slowly and with deliberation, and the same process was then extended to the cylinder. The tactile aspect of shape making was critical, as witnessed by Victor Pasmore's insistence that his audience, at a public lecture on abstract art at the Laing Gallery, should pass round lumps of clay and come to an understanding of the form by feeling it.

Victor Pasmore often stressed the difference between the ideal and personal square, and that even when the outcome of an exercise was fairly precisely determined, such as the production of a square, the result should be unique and not mechanical. Every process of shape making should be organic and developing, rather than static and pre-determined. This process of building from the core is stated in his Sunday Times Magazine article 'What is Abstract Art?':

Whereas before with the aid of the mirror, the painter approached the objective world from outside, gradually peeling off successive skins until he reached the subjective centre; in abstract form he must begin with an objective core and build outwards until he finds a subjective circumference.¹⁴

Plate 124 shows an immaculate velvety square drawn in charcoal while

Plate 125 shows a characteristic Pasmore pebble shape drawn in charcoal, showing the internal build up of marks from the centre, changing the form with a remarkable degree of expansive energy and resonance.

Plate 126 shows a balanced shape relationship through different densities of point accumulations. The subtle variation of the boundary edge of the moon-like pebble form displays a degree of tension between the interior forces and external surface.

Not all shapes were to be constructed in this manner as the reverse process of carving was also employed. Plate 127 by Martin Eldridge, demonstrates the process of 'finding' the shape by working from the edge inwards like the sculptor chipping away at the marble block. In three dimensional terms, shape making also employed the carving process, with emphasis on feeling the shape through the tactile experience of rubbing, smoothing and polishing the form (Plate 128). One particularly favoured means of shape making was through collage, combining the process of tearing and building. Above all, it was a means of exploiting the surface richness of the material, whether it be coarse or fine textured paper, contain qualities of opacity, translucency and transparency, or manipulate different patterns of newsprint and colour variations.

Plate 129 demonstrates a shape relationship exercise contrasting two shapes made up of torn paper, one containing variations of density and direction in newsprint, and the other a simple uniform dark toned rectangle of brown paper. In Plate 130 the student has used collage to create differences of tonal concentration to suggest volume. To some degree these two examples are more concerned with the way that shapes

contrast or relate to each other, rather than their relationship with the edge of the paper.

Many of the exercises were distinctly compositional and have the finality of an abstract painting. An excellent example is a collage by Stuart Wise labelled 'Unfinished still life' (Plate 131), demonstrating that analysis of shape in the objective world was frequently the starting point for such a work, and they were not merely mental problem solving exercises. Stuart Wise successfully achieves a pleasing balance between regular and irregular shapes, passive and active areas, as well as exploiting the sharper tonal accents of the letter forms above centre, the intermediate tonality of the photographic imagery, the linear patterns of the cartoon and differing directions and weighting of newsprint. The still life as a starting point was a very common procedure for shape related exercises, even in the pre-Pasmore days when the Euston Road tradition was influential in the department. There are several surviving drawings of bottles, in which the shapes are analysed, giving equal attention to the intervening shapes and intervals. However, under Pasmore's teaching, the shape making and shape relationship work became more concerned with the autonomy of form and direct observation of nature was less significant. Plate 132 provides another example of a complete compositional arrangement of drawn and collaged elements which not only resemble Victor Pasmore's early abstracts (such as 'Abstract in White, Grey and Ochre', 1949), but in the use of charcoal combined with collage, recall the synthetic Cubist work of Picasso and Braque which influenced Pasmore (Plate 133).

Plate 134 and 135 are characteristic of a persistent imagery which

relates so closely to Pasmore's own work. The shapes are simple and they strongly articulate the flat picture plane, but they are forms which are deeply buried in Victor Pasmore's early work. The flower heads, petals, breast and buttock forms, beach pebbles, clumps of shrubs and trees which made up the imagery of his Euston Road paintings are transposed in abstract form. Pasmore had absorbed and digested this imagery and therefore had an inner vocabulary on which to draw. The problem was, that if you withdraw the student from the life class and from contemplation of the natural world, can one reasonably expect the student to have the inner resources on which to build an abstract language? In the absence of observation and visual analysis, many of the exercises became derivative problem solving operations.

Certain problem solving exercises are compositional and touch on the positive/negative preoccupations of the next stage of the course.

Plate 136 has the accompanying label:

'Line becomes shape, shapes define exterior spaces which are equally visually dynamic. This is a contest for visual dominance between 'inscape' and 'outscape'.

There are several surviving line drawings which were probably examination exercises. Geoffrey Sansbury's three shape relationship and shape development exercises (Plate 137 and 138) appear to be answers to the following general design examination question:

General Design

- (a) Draw two closed linear forms on a square piece of paper 2 ft. x 2 ft. One of the shapes is to be cut by the edge of the paper.
- (b) Repeat the organisation as two tonal areas.
- (c) Make a tone reversal (i.e. a negative) of stage b.

All three drawings must be self-sufficient, of equal interest and exploit to the full the essential linear and tonal values.

The problems of equation between shapes, figure and ground, lead naturally on to the positive/negative exercises.

In three dimensional terms shape making and shape relationship was concerned with the notion of shape being dictated by material. A short statement by Geoffrey Dudley in the 'Developing Process' reads as follows:

'In starting this exercise the first step is to choose a tree form to carve into.

The existing character of the material will influence the finished design. The photograph of the small carving (Plate 139) illustrates how the inherent qualities of the wood have been used. The student has adapted this quality of the log by carving across the ribs and into the cracks, thereby achieving a series of facets and hollows which give colour and contrast to the design.

Added interest is gained where the sections protrude from the ends of the form.

In no sense has the student imposed a pre-conceived idea upon the ultimate design. From the outset the form of the material has dictated the lines on the shape.'¹⁵

Respect for material and the minimum of intervention produced some of the most satisfying results (Plate 139), and in many respects the whole exercise was best expressed in three-dimensional terms where the results were less prone to stereotyping. The limitations of the two-dimensional plane which Pasmore discusses in his Sunday Times article are probably most apparent in this exercise. Simplicity of form on the two-dimensional plane can appear thin and insubstantial, whereas the relationship of simple three-dimensional forms, involving space and multiplicity of viewpoint, results in more complex and engaging results.

Positive/Negative

The positive/negative exercises were a development of shape relationship and were established by Richard Hamilton as a problem solving activity early in the course and features in 'Diagrammar'. Most of these exercises are concerned with ambiguities and visual perception, although there is a conceptual dimension which owes much to Marcel Duchamp. The influence of perceptual psychology, and Gestalt psychology in particular, is manifest in many of these exercises and Hamilton has acknowledged his awareness of Gestalt psychology on numerous occasions. The first visual reference to the Danish psychologist Edgar Rubin occurs in the tableau 'This is Tomorrow' where the famous 'Claw', 1915 was reproduced (Plate 141). It was Rubin who first devised the ingenious image of the two profile heads which form the central image of a vase or chalice. We are thus faced with the problem of apprehending either the two heads or the chalice, but our brains are unable to register both images at the same time (Plate 142).

Perhaps another classic example would be Wittgenstein's duck/rabbit image, although the point of the exercises were essentially pictorial, and not primarily concerned with the psychology of perception, and for this reason Wittgenstein's image would not have commanded much interest. The whole problem of figure and ground and positive/negative images is dealt with by H Koffka in his 'Principles of Gestalt Psychology'. Plate 143 shows a regular pattern providing alternative black on white patterns and Plate 144 shows a similar equation of positive/negative patterns demonstrating that where the pattern is symmetrical, it tends to be the stronger form. The positive and negative exercises were investigations

of the figure and ground problem, but they were first and foremost compositional and design exercises.

Plate 145 shows Richard Hamilton silhouetted, like one of Rubin's heads, against a wall of positive/negative images. Plates 146 and 147 by M. Eyre show a successful resolution of the problem and also demonstrates the appropriateness of such an exercise for the design school in terms of screen printing and repeat patterns. Some problems are solved with a degree of symmetry of form while others, such as Plates 148 and 149 demonstrate formal complexity. Other exercises Plates 150 and 151 employ centrality of image and exploit qualities of surface texture and variety of edge. The problem was also approached through visual analysis and some students made drawings of the studio furniture (Plate 152), looking at spaces between objects rather than the objects themselves. Plates 153 and 154 are products of the life class, and undoubtedly the problem takes on a more challenging dimension, because the human figure, being such a dominating image, is almost impossible to neutralise in terms of abstract shape equations. Plate 155 by Margaret Lax shows a linear solution to the problem, and Martin Eldridge in Plates 156 and 157 steps back from the model and includes the studio environment, producing shape and space ambiguities which challenge us to read meaningful objects and forms into the picture. Images like this lead us into the problems of inference and perceptual meaning from simple marks and shapes. How the brain infers, organises and constructs meaningful patterns and images is central to Gestalt perceptual theory and becomes a major concern in many of Richard Hamilton's own works.

As previously stated, the positive/negative exercises were primarily

concerned with pictorial and compositional problems and it would be a distortion of the facts to dwell too much on the perceptual and conceptual dimension. However, in establishing the context of the work it is necessary to mention something of Duchamp's conceptual influence of notions of positive/negative factors. There is a constant theme in Duchamp's work of objects or forms being signified in terms of their opposite or negative manifestations. The nine bachelors or 'Malic Moulds' in the 'Large Glass' are represented as hollow negative moulds, or empty castings in the form of uniforms and liveries. A more recent example by Duchamp of a mould, in the apparent casting of the female genitals is 'Female Fig Leaf' of 1951. Perhaps the neatest example of the positive/negative duality is 'Door: II rue Larry, Paris'. 1927 (Plate 158), which consists of a door which Duchamp had installed in his apartment which served to close an opening between the bedroom and bathroom, or between bedroom and studio, but not both at the same time.

Within Richard Hamilton's own work, the most obvious example of positive/negative exploration is 'I'm Dreaming of a White Christmas'. 1967-68 based on a colour reversal negative. Plate 159 is a further reversal, being a negative image of Richard Hamilton standing in front of 'I'm Dreaming of a White Christmas', thus restoring Bing Crosby to his positive form. Of the positive/negative duality Richard Hamilton has recently stated:

'It follows a Duchampian idea about everything having its opposite. Scientific thought is now being directed at the notion that every particle has a negative particle partner and that a non-world exists adjacent to our world; that this world has a real existence, in an opposite phase, as the one we experience.'¹⁶

The whole notion of the balance of opposites has already been encountered in the thought of Kandinsky and Mondrian, in Klee's preoccupation with

the dichotomy of active and passive forces in nature, and in Itten's theory of contrast which formed the basis of his foundation course. The resolution of opposites into a unified whole is the key to the synthetic process which characterises the creative act.

Space Filling

The positive/negative exercises lasted about a week and would be followed by a week of space filling which was an extension of all the previous exercises allowing greater freedom of action in terms of the constituents used, whether they be lines, points, arrows, chevrons, or any observed or invented units. In 'Diagrammar' Hamilton introduced the idea of space filling with reference to the example of cholesterol. As previously stated, the whole point of this exercise was to break the habits of hand and produce the unexpected. There are many examples of these labyrinthine lines filling the rectangular space (Plates 160 & 161) but there were departures from this manipulative emphasis. All manner of signs and shapes are used to fill space employing procedures formally used in shape making and point grouping. Plate 162 shows a granular accretion of crosses forming a shape which looks like something which has fallen off the back of a lorry. Plate 163 shows a gathering of chevrons forming a rhythmic quickstep, and Plate 164 demonstrates the use of numbers as elements exploiting their formal linear interaction, as well as wittily alluding to their quantitative value. The ambiguities of the chevrons and numbers performing as formal elements or sign elements, produces something of an overlap with the sign and situation exercises. Space filling can be achieved by number, or writing, and Martin Eldridge achieves something of a calligraphic solution to the problem in Plate

165. These exercises did give some scope for representational drawing, which previous exercises had only provided for on a very limited scale, and students filled their pages with drawings of brick or stones, or any other heaped up or contained forms.

Space filling was regarded by Richard Hamilton as essentially a two-dimensional manipulative activity, but in some years three-dimensional departures did take place, and in some respects these represented a radical change of emphases to the dominantly formal character of the course so far. Unfortunately, there are scarce photographic records of what took place, but there is one interesting picture of Richard Hamilton and Joe Tilson at one of the weekly 'crits' (Plate 166) surrounded by space filling exercises and space filled objects. The sculptural solutions to the problem consisted mainly of filling up transparent jars, cylinders and containers with various objects. This was one of the first excursions into the use of assembled objects and many of the results marked a distinct departure into the Surrealist world of object association. Many of the objects had a distinctly Surrealist character reminiscent of the work of Joseph Cornell or Fernandez Arman, although few students would have been conversant with the work of either of those artists.

It marked an important point of departure, not only from the formal concerns which characterised the course so far, but also it represented a liberation from traditional sculptural media and introduced the notion of placing assorted objects together which in terms of their internal references, gave a new meaning and dimension to the work. Plate 167 shows an elegant example of space filling which may have developed from

two-dimensional studies. Plate 168 is typical of the enigmatic nature of some of the work, and appears to be the simplification and reduction of an object which may have been a hair curler. If this is the case, it does strongly anticipate some of the later analytical work which yielded many unexpected surprises from, apparently, non-descript, unpromising and commonplace sources.

Transformation and Projection

This particular exercise was distinctly Richard Hamilton's contribution to the course and has some of its roots in the cinematic narrative work in 'Diagrammar' involving the cutting and printing of lino. Its conceptual roots can be found in D'Arcy Thompson, J J Gibson, Marcel Duchamp and the Cubofuturist tradition. The basic source is the celebrated chapter nine in D'Arcy Thompson's 'On Growth and Form' entitled 'On the Theory of Transformations, or the Comparison of Related Forms'.

In this chapter D'Arcy Thompson presents his method of co-ordinates. By this method D'Arcy Thompson inscribes within a regular Cartesian grid a diagram of an organism and then proceeds to relate this organism to similar organisms by applying the same set of co-ordinates (Plate 169). In so doing, the regular grid must undergo a process of deformation in order to fit the shape of the related form, taking account of changes in proportion, length, breadth, axis and direction. It is the alteration and deformation of the Cartesian grid which defines in precise, and often dramatic terms, the changes and subtle shifts of emphasis from one form to another. Two skulls which on first acquaintance may appear

identical, can be rendered totally dissimilar through the application of the Cartesian grid. Hitherto the anatomist had given a piecemeal explanation of comparative form, whereas D'Arcy Thompson's innovation, as Peter Medawar explains, was to 'grasp transformation as a whole'.¹⁷ As Richard Hamilton has stated :

'This was regarded as Thompson's major contribution to morphology. The idea that if you had something which seemed to be related to something else in form, then there were intermediate stages. He found a way of showing these intermediary stages by making a graph and distorting the graph, and making a transition or phase of distortions in the graph to get from one to the other - looking for Darwinian truths. I have always thought of this as being like the Periodic Tables. People investigate molecular structures and find that there are certain elements, and there seems to be a certain pattern which we can place in a certain order of weights, and that if there is a gap between one thing and another, there must be something which fills that gap. They look for it and discover that those gaps in the Periodic Tables have been filled because these substances exist, and I think there is a similar analogy in Thompson's idea.'¹⁸

Perhaps the importance of these well known diagrams of transformation for the artist and the art student is in the dramatic way in which they communicate the relativity of form. As D'Arcy Thompson states:

'In a very large part of morphology, our essential task lies in the comparison of related forms rather than in the precise definition of each'.¹⁹

This is a point which any colourist would endorse in terms of the study of colour, but unlike the case of colour, form is more readily apprehended in finite, rather than relative terms. The relativity of colour can be amenably mapped and charted, and D'Arcy Thompson's grids provided the method for measuring the relativity of form. More importantly, what D'Arcy Thompson demonstrated with his grids, underlined the general perception of matter and form as a dynamic and changing process. The grids were a visual endorsement in scientific terms of similar investigations into the process of change, which arguably began with Monet and Degas, and can be traced through the development of chronophotography,

Cubism and Futurism. Rather like the microcosmic and macrocosmic range and scale and possibility presented by the point configurations, D'Arcy Thompson raises a consciousness of the infinite variety and changeability of form. As D'Arcy Thompson states:

'We might suppose that by the combined action of appropriate forces any material form can be transformed into another: just as out of the shapeless clay the potter or sculptor models his artistic product; or just as we attribute to Nature herself the power to effect the gradual and successive transformation of the simple germ into the complex organism'.²⁰

This point is also clearly put by Richard Hamilton:

'What interested me about the thing is that it is so universal that anything can become something else; that the idea of transformation seems to me to be very fundamental. When you think of the human form starting from a cell, or any plant form whatever starting from a single cell, we all come back to the same form, or go back to the same form initially, and then all these things diverge from that. These changes of pattern are fundamental and it is simply accepting this as an idea about life almost.'²¹

The visual realisation of some of these ideas did not always match the profundity of the source. Early examples of transformation occur in 'Diagrammar' where the black square is transformed into the white square through the process of cutting the lino block. Plate 170 shows a simple circle expanding and spreading into more complex forms. Plate 171 demonstrates a sequence of deformations of a K form, creating an animated dance. Its sequential and very animate nature recalls the frame of the cinematic film and it is in this respect that these ideas link chronophotography and J.J.Gibson's notion of vision as a continuous reception of form through projection, transformation and deformation. Some of these ideas were explored on a purely geometric plane by submitting a regular system of co-ordinates to oblique, hyperbolic and irregular distortion (Plate 172).

Duchamp's influence on some of these ideas has already been alluded to, the most obvious example being the 'Draft Pistons' in the 'Large Glass'. These are the rectangular openings in the 'Blossoming' at the top of the Bride's domain, which were formed by photographing three squares of suspended gauze which were deformed by the chance action of draughts and air currents. These, like the 'Standard stoppages' described by Duchamp as 'canned chance', represent deformations of absolute forms and absolute measurements. A note in the 'Green Box' describes the 'Draft Pistons' as a group of marked squares 'disSymmetrically arranged'. The theme of deformation and transformation is extended into his ideas concerning perspective and shadow projection. The 'Large Glass' involves extremely complex perspective, as Richard Hamilton and Roger Westwood encountered when they created the replica of the Glass in 1965/66. This project involved, not a process of copying the original, but a method of returning to the 'Green Box' and repeating original procedures. As Duchamp stated in his interview with Pierre Cabanne, his preoccupations were mainly technical and concerned with perspective:

'In addition perspective was very important. The "Large Glass" constitutes a rehabilitation of perspective, which had then been completely ignored and disparaged. For me perspective became absolutely scientific.'²²

One note in the 'Green Box' expresses something of the idea that every form can be viewed as the projection of another form:

'"The Pendu femelle" is the form in ordinary perspective of a "Pendu femelle" for which one could perhaps try to discover the true form. This comes from the fact that any form is the perspective of another form according to a certain vanishing point and a certain distance.'²³

These ideas became developed into the notion that if a shadow is the two-dimensional projection of a three-dimensional form, then a three-dimensional form is the projection of a four-dimensional object:

'What we were interested in at that time was the fourth-dimension. In the "Green Box" there are heaps of notes on

the fourth-dimension. I thought of the idea of a projection of a visible fourth-dimension, something you couldn't see with your eyes. Since I found that one could make a cast shadow of a three-dimensional thing, any object whatever - just as the projecting of the sun on the earth makes two-dimensions, or, to put it another way, any three-dimensional object, which we see dispassionately, is a projection of something fourth-dimensional, something we are not familiar with.' ²⁴

The theme of cast shadows not only occurs in the 'Large Glass' but in other works by Duchamp such as 'Tu m', 1918, and the photograph 'Shadows cast by ready-mades', 1917. There is a note in 'The Green Box' entitled 'Cast Shadows' which relates to his speculations on the fourth-dimension.²⁵

Duchamp's theories on the fourth-dimension may appear far removed from a series of, what may appear superficial and low level first year student exercises, but I refer to them because they contributed indirectly to the creative and intellectual world to which Richard Hamilton exposed his students. Hamilton would refer to D'Arcy Thompson and Duchamp but he did not make them required reading and, probably, very few students would in fact go to those sources. What was transmitted was not factual knowledge of these sources but a plane of awareness. Many of these transformation and projection exercises did involve the investigation of projections and shadows. Plate 173 shows the life model with a grid projected over her; a simple and effective way of exposing the form. As Hamilton states:

'A simple way of dealing with the Cartesian co-ordinate system is that you can direct it over a curved surface and instead of drawing the thing, you can bend a curved piece of paper, and you can immediately get a different flexing of the grid. The idea of delineating a grid over a more complex form enabled you to understand the form.' ²⁶

Life study (Plate 174) was one means of exploring these ideas through objective drawing. Two life drawings (Plates 175 and 176) which may not

directly relate to this exercise are concerned with lateral sections through the body. Other images taken from photographic sources (Plates 177 and 178) consist of stripes and numbers taken from football jerseys. Other examples (Plates 179 and 180) simply consist of sequential drawings of folded and screwed up forms displaying the deformation of letter shapes. Plate 181 shows the deformation of the chequer board pattern on a three-dimensional form.

As Rita Donagh has pointed out, any lively and creative teaching situation is reciprocal and the responsive teacher can learn as much from his or her students and vice versa. Certain ideas and images which were being investigated in the studio also appear in Richard Hamilton's contemporary paintings. In 1962, Richard Hamilton began a series of paintings under the generic title, 'Towards a definitive statement on the coming trends in men's wear and accessories.' In the second version of this series can be seen the deformation of the number '35' contrasted with the upright 'I'. In 'Adonis in Y-fronts' the right hand side of the figure is made up of three contours taken from photographs of Praxiteles Hermes (similar to the procedure employed in 'reNude') and the stripes are taken from a tee-shirt advertisement. Likewise the stripes in the third painting of the series is taken from a photograph of some trunks, and in one study for this painting, the theme of stripes and deformation of form is continued with the introduction of the Stars and Stripes taken from a photograph of President Kennedy's lying-in-state. On the same theme of stripes, ambiguity and deformation of form, an intriguing photograph survives of Judith Holmes (Plate 182) wearing striped suit, posed against a striped background. This may have been taken up as a follow up to some of the studies in the life studio exploring projections

or it may have been the result of some of the exercises in perception and illusion.

Perception and Illusion

There is less surviving visual evidence of this exercise and in many respects the perceptual content of this whole area overlaps with colour theory and many other exercises. Richard Hamilton states quite emphatically that J J Gibson was the starting point for this work, however, it must be stressed that it was never presented as a textbook.

'I would have spoken for about an hour at the beginning of the week in general terms, not being too specific about what they would they would do, but suggesting areas which should be investigated.' ²⁷

Few of the surviving exercises point to Gibson's text in any obvious way. Plate 183 is very similar to some of Gibson's diagrams dealing with the gradient of textural elements, but this drawing is more to do with tonal recession and character of mark and bears little relationship, in terms of quality, to Gibson's hard-edge illustrations. Most of the perception and illusion problems were dealt with in terms of colour rather than tone and there is a degree of overlap with the colour exercises dealing with advance and recession. Plate 184 is one modest example by P. Chagg of spatial ambiguities formed by two ellipses. Like the duck/rabbit and vase/profile examples, which can only be read one way and not both simultaneously, so these ellipses alternate in presenting us with a forward or backward facing edge. The ambiguity is compounded by the fact that the colour and tonal disposition contradicts the logic of the perspective, so that the wider edges which logically come forward under the rules of linear perspective, are represented by lighter tones and

colours which normally recede under the rules of aerial perspective. The phenomena of colour advance and recession were frequently investigated within the framework of contradictory linear perspective schemes. Plate 185 shows a wall display of colour exercises with some perception and illusion work on the left hand side. At the top can be seen a blue and red circle placed over parallel lines which dip under the red circle, diagrammatically stating the greater weight of the red circle, and thus contradicting the principle that darker, colder forms express greater weight and density.

Simpler diagrams represent cubic structures in perspective with cold and warm colours, so displayed as to confirm or contradict the form. Plate 186 creates tension and ambiguity with differing vanishing points and an alternative of dark, cold or warm foreground markers. Plate 187 like the ellipses by P Chagg presents the spectator with alternative readings as to which of these angular forms come forward. Plate 188 shows a tonal progression from dark receding to light in the vertical strips and its relationship to the ground. These diagrams were set up to investigate the means by which we perceive depth, either through linear perspective, warm or cold colour value, or through light or dark tonality. As all colours also have tonal values, there is the added problem of whether colour denotes depth by virtue of hue, intensity, tonality, or by combinations of all these factors. The dominant preoccupation with ambiguity and contradiction is in some respects an extension of the positive/negative idea and a recognition that the strongest visual images are at root paradoxical.

As was constantly stated none of these exercises was to be regarded as

works of art, but occasionally certain works do transcend the level of exercise and assume a finality of form which makes them ends in themselves. Plate 189 shows a construction by Milsom Baylis in which he builds a series of squares and circles projecting out, at various lengths, on a series of dowling rods mounted on a flat plane. What he seeks to discover, is how we perceive colour advance and recession when these forms are physically presented and projected into real space, rather than confining the problems to illusions on the flat surface. The idea is not dissimilar to Charles Biederman's idea that Monet's investigations of colour change in Rouen Cathedral could best be extended by building constructions which manipulate actual light and colour. The general sculptural arrangement of planes and disposition of form colour in Milsom Baylis's work, as well as its permanent realisation, does lift this above the category of throw away exercise.

Sign and Situation

Very little survives of the sign and situation exercise which was very much a conceptual exercise about signs and their meanings. The source of Richard Hamilton's interest in semiology is the Independent Group where these matters were discussed. Lawrence Alloway and Toni del Renzio had based their contribution to 'This is Tomorrow' on semiological ideas, and Lawrence Alloway and William Turnbull had both planned to mount exhibitions on the basis of signs and symbols. In one sense the sign was a means of shifting the formal emphasis of the course. If a shape could assume the form of an arrow, or any other symbolic form, signifying something other than its own formal attributes then this was a means of opening up a different kind of pictorial language. Stemming from the

directional flow of particles in the 'flow diagrams' it was a short step to indicate the direction by means of arrows. In 'Diagrammar' Hamilton states:

'Forces may also be suggested by signs. representing a kinetic situation or a stage in an event is the objective of 23 (Plate 190).²⁸

A similar example is given to illustrate his article 'About art teaching, basically', where an illustration of a grouping of arrows signifies the interaction and direction of forces. In perception and illusion many of the diagrams took on a sign-like shorthand to express ideas of weight, density and direction. Hamilton realised that this was a short step to find symbolic correspondences to those perceptual exercises:

'I thought that if you were going to deal with perception, such as considering whether forms advance or the effects of different densities of tone, then there was also the image which was equivalent to the motorway sign. This could be the image of a bar in a disc, or the vertical bar doing something which was different from the horizontal or diagonal bar. I was interested in whether these images were learned or whether it was a perceptual thing. These were the kind of areas which were discussed when we were moving in a slightly more figurative direction.'²⁹

Most of the signs were simple directional or non-directional signs as in Plate 191. It was an investigation of simple graphic pictorial signs and in this respect the exercises do reflect something of the graphic design imagery of the period. Plate 192 is a very witty idea demonstrating a pictorial idea which embodies abstract forms which recall the line and point exercises. As Hamilton has stated:

'I suspect that Victor would not have approved of the idea. You can't have abstraction which suggests anything as explicit as something happening in these terms.'³⁰

Another image which formally resembles the point and shape making exercises is Plate 193 by Martin Eldridge entitled 'Black Sheep of the

Family'. Another simple graphic idea by Martin Eldridge is 'Psychology' and 'Physiology' (Plate 194). From the aesthetic point of view much of this work would be considered fairly low level and certainly Hamilton had little interest in the aesthetic dimension. These are simple pictorial ideas which are willed, rather than the natural outcome of a personal line of investigation. Of Plate 191 Hamilton states:

I would have been interested in a thing like this, not for its aesthetic qualities, but for its success or failure as a demonstration of the enquiry in hand.³¹

Again Richard Hamilton stresses the conceptual nature of the exercise, and the very nature of this work, being more conceptual, did exclude the aesthetic dimension. Because of the narrower conceptual base of this work, some students who were not interested or conversant with semiological theory encountered some difficulties. Other conceptually based work, like transformation and projection, perception and illusion, did permit a wider field of interpretation, but, nevertheless, the fact that few students were intimately acquainted with Duchamp, D'Arcy Thompson and J. J. Gibson, does go some way in explaining the gap between the profundity of the source and superficial nature of some of the visual realisations. This question will be more fully discussed in the concluding chapter.

Colour

Many of the problems investigated within the context of perception and illusion overlap into colour theory, and colour research was a major aspect of the course lasting two weeks. This was an activity which Richard Hamilton preferred to delegate because this was one area which

totally defied any comfortable intellectual analysis. As Anton Ehrenzweig has stated in his 'Hidden Order of Art'.

'Colour seems intellectually unmanageable.'³²

This point is endorsed by Richard Hamilton:

'I always felt very uncomfortable when it came to the question of colour because it did not seem to me to be susceptible to any kind of analytical routine. It is a very subjective thing whether you like one colour more than another, or like one relationship more than another. You can say that certain things happen; that red will appear a very warm colour and come very close, and cold colours appear very far, and give the reasons for that. You can conduct certain experiments and trials and all the clues of perception can be offered, but what I found difficult to do was to put people through a course in colour which immediately became a question of taste. I always tried to avoid saying that I liked one result more than another and I am perfectly prepared to make decisions for myself, but I do not like to offer them to my students because it was too vague. I was very glad when someone with terrific colour sense like Victor or Terry Frost would come in and take over that part of the course.'³³

On the intuitive level Victor Pasmore with his exquisite taste was ideally suited to teach colour and this was one aspect of his teaching where he did actively encourage observation and analysis. Richard Hamilton did teach colour in terms of optics and discords, but he did have a particular contribution to make when it came to the issue of colour association.

'When I taught it I would reject the idea of making the kind of judgement as to whether a thing looked better if a particular kind of orange was related to a particular type of green, or whatever. I would probably say that you should study the effect of putting an orange against a particular blue because something was likely to happen because they were complementaries. There were all sorts of rules of that sort, but quite beyond that, I would point to the fact that there were certain colours which had association, such as soft pink which one may associate with toilet paper. Another particular kind of pink one might associate with the idea of a Cadillac, or an ice blue that one might associate with a Frigidaire, and there were lots of emotive colours which had nothing to do with the ideas of colour values that had been handed down for generations about what was right and proper .

. . it wasn't a question of rejecting one thing, but widening our relationship to what colour was.'³⁴

Certainly in his own painting, Richard Hamilton had attempted to use colour in a totally systematic way avoiding matters of taste and allowing the subject to dictate which colour was appropriate. Thus in 'She':

'The Caddillac-pink of this particular model of RCA Whirlpool's fridge/freezer was adopted with enthusiasm for the painting.'³⁵

It was not that Richard Hamilton denied such matters as taste and intuition in the exploration of colour, but that he felt he was not the best person to teach it that way. Always recognising that people teach best that which they are most interested in, he felt it wise to allow the committed colourist to teach colour:

'The Terry Frost approach - I never got very good results when I tried this myself - whenever a great colourist like Terry came along, immediately the room began to sing and vibrate when these fantastic things happened - or Dick Smith with his rainbows. There was something that went on as a result of the enthusiasm they had, with the involvement with media or the sheer pigment, which I had not got.'³⁶

Terry Frost came to Newcastle on a painting fellowship in 1964/65 and taught the colour project on the first year foundation course (Plate 195). He was very experienced in basic design teaching, having been appointed Gregory Fellow at Leeds University, and worked with Harry Thubron, Tom Hudson, Alan Davie and Hubert Dalwood at Leeds College of Art. Prior to this he had taught at Bath Academy, Corsham where an equally radical pedagogy was being established by Frost and his colleagues Adrian Heath, Peter Lanyon, Peter Potworowski, and Bryan Wynter. Terry Frost had studied under Victor Pasmore at Camberwell and it was Victor Pasmore who invited Terry Forst to contribute a statement towards the 'Developing Process' exhibition. Terry Frost has been a key figure in the basic design movement and his teaching of colour

has been most influential. For this reason, I shall quote him fully and not confine his comments to the work carried out at Newcastle and Leeds but also Reading University where he taught many years. His statement on colour in the catalogue to the 'Developing Process' is as follows:

'It is a very good starting point for 1st Year students to study colour. In colour analysis students are faced with the fundamentals of colour related to form. The basic problem of alerting people's senses to colour can be demonstrated by using a flower for an example. The students are free to analyse and to synthesize as they will, and in so doing, they come to grips with certain problems:

The grammar of colour mixing gives an analogy in paint on paper of the colour of a flower.

Objective drawing: a description of the particular proportion and shape of the colour. The drawing (constructed) and the colour (felt) are both put into one's grasp at the same time.

The training of the eye in selection.

The training of the hand.

Training in seeing the part in relation to the whole.

The being involved to such a degree that one's senses are continually aware of colour and its relationship to a particular form at all times.

All of our students have found that with sufficient effort (I want to emphasise that it does not have to be the talented student only) the rhythm of growth can easily be observed, understood, and put down on the flat with the medium. This in turn enables the student to tackle the various problems of construction in any department of the school of Art. At the same time it gives them a sound foundation for their own creative ideas, and they can make their own work grow, as in nature.

A student given, say a "thesis in yellow" will discover with complete freedom within yellow organisation, harmony, and discord all allied to proportion and form, which would be very difficult to come by from the study of colour theory alone. Some simple things are noted like the differing greens on leaves or stalks which comes from each differing yellow. The amount of yellow or orange to blue and purple in a pansy. The cool and warm of colour. All these things are covered in an objective way in colour analysis, plus the surprise and reward of personal discovery.'³⁷

What emerges from this statement and a subsequent interview with

Terry Frost, is emphasis on observation, analysis and discovery, rather than pure theory. One remarkable colourist and teacher at Leeds College of Art was Gavin Stuart who provided a very rigorous course in colour theory and whose expertise in this field was unrivalled. Terry Forst preferred to take a freer approach based on close analysis and observation as demonstrated in a flower analysis (Plate 196) which has the following accompanying notes:

The light behind produces pink and violet tints towards the outer edges of the petals.

The centre is pale green, and the darkest areas of the flower are black. In the centre a pink effect is created where the tips of the smaller petals are clustered together.

The leaves in the centre are quite a dark green.

The sepals are green at the base but become a very pale yellow.

The under-side of the petals are mainly white with small areas of dark colour on the side edges'.

Terry Frost explains the observational and analytical work as follows:

'There was a tremendous amount of colour analysis from nature in the sense that we would get students to bring in things they liked, whether it were a flower, an egg or whatever. They would then analyse that in drawing and in colour, finding out the particular colours and proportions of colours in that object. They would actually place the proportions of colour down rather than copy them, rather like the way in which they would draw the rhythms of the object in charcoal. It was really analytical and complemented the purely abstract colour exercises. Thubron was lucky enough to find out that the Rippon Museum was closing down and he borrowed a van and got over there before everything was thrown out. There were marvelous corals, stuffed birds and eggs, and the whole first year was littered with all these gorgeous things. They were analysed, and then they built up on paper all the rhythms and colours, and then built up constructions based on the idea. Then we would have a whole room full of constructions which related to this analysis. You could not anticipate what you would get because each person would select a different colour selection too. It was a very personal and subjective thing. It doesn't matter how intellectual and objective you are, there has to be a tremendous amount of subjective animal instinct. There were plenty of people who could give the intellectual side, but that very soon goes dead with a lot of

people unless they can have a little encouragement for their natural instincts.'³⁸

Terry Frost always tried to hold the balance between instinct, feeling, taste and disciplined analysis. I quote in full from an interview with Terry Frost at Newlyn in 1983.

'When I did the colour (at Newcastle) I took it quite freely and I didn't have any of the intellectual approach which he (Richard Hamilton) had. I was doing it from nature really. I was much freer, and not knowing as much as those boys, I was quite happy to put down colours and see what happened. One knew the elementary theories of colour, but it was more interesting to find out, and it was more interesting for the students to find out what one colour would do to another. My whole teaching was based on what you would find out when you put colours down. You immediately began to find out about how much red and which particular red you wanted. It seemed to me that that was very important. It was which red goes with which blue, not just red and blue, but which red with which blue. I don't think that Richard was very interested in that. He knew which red he wanted and which green he wanted to express his ideas. I was more interested in people finding out what red they wanted and what blue they wanted to express their ideas. I concentrated on just the colour arrangements.

We actually did the colour in three-dimensions as a part of it and we didn't just do it on the flat. We made sketches for it. They weren't really constructions, although they used hardboard and thick cartridge paper, so that you put your red back and your blue forward, which was the opposite way round from the way you would do it on the flat. Then you had to make the thing appear larger or smaller to make it work, because we built these constructions up and people made all kinds of things, making them as they wanted to make them. I remember at Newcastle they made great big boxes and filled them with different planes of colour. After they had worked on the flat, they then found out what would happen in space. All the while nobody knew what they were going to get; they found out and that was one of my basic principles.

Although I was working on pure abstract paintings, I was always a bit associative with nature and so I always encouraged people to walk about looking at things. I shared a particular selection of yellows, which was related to a walk I did in Corsham in 1952, with a girl who wanted to write a thesis. I suggested that she write a thesis on yellows, and we were walking through the grounds at Corsham and there were all these yellow flowers. These yellows had a different shape and structure; some were hanging down, some were sticking up, and some were circular and all had different yellows. Each yellow had a different green and so

the earth looked a different colour with a different yellow. I pointed all this out to the girl and she did her thesis on yellow, and at the same time I got interested in it, and I did two or three hundred slides from Zennor to Land's End. I walked for several days and built up this collection of slides of the different yellows and showed them to the students. You could go out and pick any colour and find out the different structures which went with it. If you do that, I think you learn quite a lot about the fact that yellow isn't yellow but three hundred different yellows. I have got three hundred different yellows here in my studio. You can do the same with blues, reds or blacks. If you can learn that as a student then you can automatically find out the blue you want for what you are trying to say . . .

We would do a page of blues, a page of yellows, and a page of reds. This would be a mixing exercise to teach them to paint clean. Then, of course, what happened was the unexpected. Some people would do different squares because we didn't give them the size, and they inadvertantly made a rhythm because they would then lean slightly. If you talked about rhythm they would become inhibited, but if you didn't talk about rhythm you found that you had some marvellous sheets which leaned this way and that and did all sorts of things. I was able to point out all these possibilities, so all the while it was enlarging one's experience and knowledge of colour, although we were only doing a simple project. That kind of idea carried on to Reading where I taught the first year students with Rita Donagh who was a tremendous girl to work with because she knew all about the Surrealist side of things, of which I knew nothing about. She was very useful to me and I learned a lot from her.

I took the students on blacks there, because I was interested in making black and red, yellow and blue. The black project - I gave them a 9" square of hardboard and they all mixed their black on a piece of paper first, so that they all came up with what they thought was a neutral black, which wasn't too warm or too cold. Then I said that when you have got your black, put it on the 9" square, and then we all put the 9" squares up on the wall and it made the most marvellous mural. But there wasn't one black square the same and it absolutely shattered all of us, because they went from very red black to yellow or blue black. This was absolutely shattering because every person swore that what they had done was mid-black. That taught me that everyone thinks differently and every student had their own black. How important that is I don't know, but it was important for us to find out.

R.Y. How did the three-dimensional constructions come about?

T.F. I was very interested in constructions and I used to make quite a lot of them in those days. Victor used to make them and Harry Thubron made a lot and we would put anything together. It didn't matter what it was, whether it was bits of tin, plaster or wood. We used a lot of plaster to make

shapes and we coloured it. We used fibre glass and all the materials which were available, but the main thing I was interested in was using squares of hardboard, which we used to colour and put in different places within a box. They would build these up in different situations and you would have blue at the back and red at the side, or you could divide it. It was very much like the Bauhaus, but they developed as people did their own things and made different shapes. The constructions always grew out of very basic forms and sometimes every piece was cut so that it was proportionately related and the whole piece could be divided into Golden Section areas. Then they would be cut into pieces and assembled into space. Also, we used wire, and if you painted it yellow, it would travel round faster than if you painted it blue. We did all those kinds of experiments making the same shape with the single wire and then painting it different colours to find out the speeds of colours and it all depends of how thick the wire is and how this affects the speed of colour. It all sounds very elementary, but it was quite exiting.³⁹

Terry Frost was not the only visiting fellow to take over the colour project at Newcastle. In 1961/62 Richard Smith, likewise, extended colour exploration into three-dimensions with his environmental rainbow room (Plates 197 and 198).

One routine activity was the colour wheel, and this had been instigated by Victor Pasmore, who felt that every student, with a lifetime of creative production ahead, should find the time to make a colour wheel. As previously stated, these very mechanical exercises in colour mixing concentrated one's awareness of colour relativity, and the dubiety of manufactured colour descriptions. The aim was to produce several concentric circles, the central band representing pure unadulterated colour, the inner bands demonstrating the addition of white, and the outer bands that of black. Because primary red mixed with primary blue produce something resembling black rather than purple, there was a necessity to add white to the darker colours in order to reveal the purple. Plate 199 shows Rita Donagh in front of a series of colour wheels, and Plate 200 shows a fine example by Judith Holmes which was

made in such a way as to allow each band to revolve independently allowing multiple allignments of the colour bands.

Much of the time, as Terry Frost described, was spent just putting the colour down and seeing what would happen, and this was simply a matter of intuition with some examples demonstrating a more tasteful relationship than others (Plate 201). Plate 202 by Susan Carter demonstrates a range of blue, the tonality of which creates depth in the manner of some of the perception and illusion exercises. Plate 203 is a study of intermediary colours between cadmium red and lemon yellow. The accompanying note says:

'Effects of different colours (of progression Cad' Red to Lemon Yellow) on Cadmium Red.

The lighter the colour in the centre the more brighter the outside colour.

Greatest contrast to Cadmium Red in CR - LY enhances tone of Cadmium Red - the less contrasting the centre, the more the outer colour is nullified.

Perhaps the greatest preoccupation was with colour optics and the juxtaposition with complementary opposites. Plate 204 shows a series of colour exercises involving the use of concentric circles which are regularly, or irregularly disposed within the perimeter circle and with colour variants of blue/red, and red/green. The combination of complementary colour and the disposition of the circles, sets up strong optic movement which in form is not dissimilar to Duchamp's 'Rotoreliefs' (optical discs). The highly retinal nature of the colour work may seem far removed from Marcel Duchamp, but Duchamp did become involved with optics in the early twenties and his 'Fluttering Hearts' 1936, shows a series of concentrically arranged hearts in blue and orange whose pulsating rhythm is an effective demonstration of those optic principles

being investigated by the students. In 1963, Richard Hamilton painted 'Epiphany' in which he uses the same colour combinations as Duchamp to create the vibrant slogan 'Slip it to Me' on his blown up lapel badge which he has described as an Op/Pop painting.

Plate 205 shows an image which has a degree of resolution that goes beyond a mere exercise and can be considered a painting in its own right. The student concerned has attempted to bring together several exercises in one image. Charting a course from left to right we have a series of colours zig-zagging from primary red, through the oranges to yellow, and through the greens to primary blue. In so doing the colours create a space and depth which is probably due more to tonality rather than hue, or coldness and warmth. The horizontal division of the board is according to Golden Section proportions. Along this lateral chart is introduced a shape which is complementary in colour and tonally equal to the ground, thus maximising the vibrancy of the complementary relationship. The superimposed shape is designed to divide its rectangle with the same duality with regard to figure and ground as 'the positive/negative exercises'. Because the width of each rectangle is constant, and the depth reduced according to Golden Section proportions, the superimposed shape undergoes a series of deformations which changes the relationship between figure and ground towards the bottom of the picture.

The vast majority of colour work at Newcastle was investigated in an abstract and theoretical way and did not usually relate to objective visual analysis. However, as usual, the life class did provide a forum for visual analysis, and Susan Carter's life study (Plate 206) does recall Terry Frost's experience of the life room, and like the flower

studies, she has chosen to analyse the colour in terms of proportion rather than traditional representation. This study was made in 1963/64, two years before Terry Frost went to Newcastle. Certain surviving colour studies do suggest some external visual source like Pat Cohen's work which has a distinctive Liquorice Allsorts flavour (Plate 207). Some colour studies by Martin Eldridge (Plates 208, 209, 210, and 211) suggest secondary sources in colour photographs and reproductions. A series of studies of the sea includes the Arctic, the Straits of Magellan, waveburst at the Fijis, clear shallows in the Bahamas, Cape Wrath in Scotland and a sunset over a beach. Martin Eldridge takes up the same theme with colour analysis in works of art including Courbet's 'Atlantic Rollers', Turner's 'Seastorm', and Bruegel's 'Tempest'. This represents the only example in the course of reference to art historical sources and it is important to emphasise that Richard Hamilton rarely referred to works of art. Invariably, his practice would be to refer to non art sources in the world of science or the commercial environment and this was essentially his way of steering the student's thinking towards new sources and unexpected possibilities.

Area Division

This exercise was a fundamental compositional operation with regard to space and area division. The sequence of exercises varied from year to year and it logically appears to be more related to some of the earlier formal exercises and does not naturally follow on from colour. To some degree, the earlier line work did anticipate the compositional problem of dividing and structuring space. Some line drawings which resemble Mondrian's early work offer suitable examples of successful area

division. Mondrian's work provided a ready model and many examples are inevitably indebted to his example. During the Pasmore era there are many examples of area division executed in bold charcoal lines on newsprint. Area division also provided an opportunity for many students to investigate proportion and apply the Golden Section, or refer to those sources which had influenced Victor Pasmore and Terry Frost; namely Ghyka, Hambridge, Power and Hulme. The emphasis was very architectural and served an obvious bridge between drawing and construction. In fact many of the drawings looked, and served as blue prints for three-dimensional development. In this respect, I quote two notes to Plate 212 which was exhibited in the 'Continuing Process' exhibition:

'Line moves laterally to generate plane. This is the beginning of three-dimensional construction in space. This progression from one to two to three dimensions - the removal of traditional barriers between painting and sculpture, and between sculpture and architecture was fundamental to the new approach.

The developing process was characterised by the use of space as a positive design element, and by the ultimate aim of creating works of substance by insubstantial means.'

The thinking behind these exercises owes everything to Victor Pasmore who was preaching a new art in which the dividing line between painting, sculpture and architecture would be abolished. Pasmore himself, in his use of transparent perspex was creating substantial work from insubstantial media. The void, the space, the transparent plane and line construction, was providing a sculptural alternative to the modernist orthodoxy of Moore and Hepworth, who persisted with the traditional material of stone, wood and bronze. The sense of weight, mass and monumentality, as well as the expressive gravitas of Moore, was being challenged by the lighter abstract precision of construction with its exploitation of light, colour, line and plane.

A series of exercises by Martin Eldridge aptly show, with clarity and logic various ways of approaching area division problems. Plate 213 shows the rectangle divided into equal squares and on this regular grid lines have been drawn and added building up arrangements of increased complexity. Plates 214 and 215 are concerned with horizontal division. Plate 214 is concerned with the same divisions, but varying widths, showing how the variable width and proportion can change our perception of the spatial banding. The bottom drawings show how varying thickness of line can suggest slight vertical movement. Plate 215 shows horizontal area division with varying horizontal lengths. Plate 216 shows a further development with the introduction of vertical lines and some slight variation in the weight of line. Plate 217 shows further linear modulation with the lines finally connecting the edges of the rectangle with the addition of tonal blocks, asserting the two-dimensional plane of the paper. Where the lines float at differing lengths, and with differing weight within the rectangle, depth and spatial illusion is created. Where the lines traverse the rectangle and join the edges, the two-dimensional plane is structurally articulated. Plate 218 shows the gradual dissolution of the grid with the introduction of angular lines, and finally the dynamic curvilinear line breaks open the whole figure and architectural space gives way to organic line.

From the flat area division drawings came the light wooden space frames. Usually these began as cubic structures which contained further vertical subdivisions, like the three dimensional projection of a Mondrian. Others, like Plate 219 by Gillian Hargreaves, introduced diagonal elements which create a space frame within a space frame. Plate 220 shows Matt Rugg and Eduardo Paolozzi discussing space frames at the

weekly 'crit'. Some of the space frames contain flat panels, introducing solid planes within the structure. In some respects these works of 1962/63 represent a development of the plane construction (Plates 221 and 222) carried out under the direction of Victor Pasmore and Geoffrey Dudley. These works represent asymmetrical plane dispositions holding the vertical and horizontal forms in balance. Later space frames broke out of the cube and rectangle completely creating open angular kite like forms (Plate 223).

Image

Image making was almost entirely Richard Hamilton's contribution to the course and marks a distinct change of direction from the dominant formalism of the course so far. Image is divided between selective and inventive imagery. The inventive imagery was concerned with notions of head imagery, and the media explored were collage and assemblage. Ideas about head imagery had been explored thoroughly and investigated by Hamilton's contemporaries William Turnbull, Nigel Henderson and Eduardo Paolozzi. Nigel Henderson, who was to frequently return to the head theme in his work, produced the celebrated photocollage 'Head of Man' for 'This is Tomorrow' at the Whitechapel Gallery in 1956. Of this 8' x 4' image, Henderson wrote to Colin St John Wilson:

'The vizor like element was to symbolise this Head projection of Head protection role. The face was heavily textured to underline the association with hide or bark and the bust/shoulder were adumbrated with bits of photo-material like stone or leaf to further this association with nature.'⁴⁰

Paolozzi, influenced by Ernst and Surrealist collage, produced a number of head images in the fifties which were built up of mechanical scrap and automobile parts, which were either collaged into silkscreen prints, or

impressed into clay and cast into bronze. Paolozzi received a fellowship at Newcastle in 1962/63 but was not specifically involved with teaching head imagery to first year students. This was introduced and taught by Richard Hamilton and Geoffrey Dudley, although Hamilton does acknowledge Paolozzi as the source of the idea:

'It is really an idea of Paolozzi's rather than mine. I think it is a very fundamental one. If you put any kind of lumping of an object into a roughly spherical shape, and you put them on a stalk, you immediately think of a head. I do not know that Paolozzi would have approached it in quite this way but he certainly made quite a lot of assemblages in collage material. If you made a Victor Pasmore shape, and made it with bits of cut-out car engines, like Paolozzi, it always looked like a head because it had a base. In fact that is probably the distinction. If you put a pyramid at the bottom of a Victor Pasmore shape, you would immediately think of it as a head. It has to float and be isolated to think of it as a shape and not a head. As soon as you do anything that remotely gives you a connection with the placing of head - of a roughly spherical shape on something, then it is nine times out of ten that the person encountering it would think of a head. It is like a Rorschach test. Anyone will react to it in the same way, and I began to theorise about this and say it is because human beings are interested in themselves, and I think this is a fairly plausible conclusion to come to. So we began to introduce a kind of figuration at a very primitive level. Rather than draw a head you could put things together and find it was a head.⁴¹

Richard Hamilton would make a similar point about how we react to the simple disposition of rectangles. If a rectangular canvas is arranged horizontally, then it suggests a landscape, and if it is arranged vertically, the figure.

Head imagery represented a decisive change in the course towards figuration. Because students were cutting up magazines and making collages out of advertising imagery, the emphasis became that of visual metaphor and analogy, rather than material against material. The earlier use of collage in the shape making exercises was concerned with texture, pattern and colour, but now the formal properties gave way to

illustration, comment and visual pun. Because of the nature of much of the source material in colour magazines, these images correspond more closely to the Pop environment which indirectly fostered them. It was only with regard to this part of the course, that one can determine the Pop influence of Richard Hamilton, but this was due more to the nature of the collage material which the students were handling, rather than any specific Pop ideas that Hamilton was trying to communicate. Hamilton was not interested in imposing Pop images on students.

Plate 224 by Milson Baylis contains an elegant juxtaposition of verbal and visual symbols relating to the five senses. Sight and hearing combined with visual symbols of the sun-glasses and telephone, the juxtaposition of 'Touch' and typewriter, the schematic rose for smell and the sensual, gluttonous, hot-dog lips which ironically partners the word 'Taste'. The same transparent telephone image appears in Plate 225 where it doubles as windpipe and mouthpiece for the devouring mouth which exposes teeth/tonsils made up of open mouthed cuckoos. The 'Kraft' barbeque sauce bottle adds the spice of Pop, but both collages in their visual and verbal punning owe much to Surrealist, and to some extent late Cubist collage. Plate 226 by John Newton chooses to make his head image out of heads, while John Myers (Plate 227) produces what may be a self-portrait combining free drawing and collage techniques. This exercise provided much scope for whimsy, fantasy, wit and verbal elaboration. Perhaps more significantly it introduced the notion of collage as a means of overlaying different ideas and as an alternative method of picture making.

The sculptural development of this idea took two forms. Either the

images were simple sculptural forms made of plaster, or they were assembled in a more elaborated forms of junk metal and wood. Plates 228 and 229 are simple plaster forms which conform more to the idea of simple abstract shapes immediately suggesting head forms in the terms which Richard Hamilton described. The exercises changed each year and frequent fortuitous circumstances account for changes of emphasis. Demolition work at the university in the early sixties provided rich plunder for junk and assemblage material. Head images were wired and hammered together in a very free inventive manner without any resort to involved sculptural techniques. The technical means were crude and unsophisticated and the aim was for any easy, rapid turn over of ideas with little regard for permanence. Not only did the exercise provide scope for imagination and invention in terms of content and ideas, but also use of assembled junk suggested all kinds of material possibilities. Like the two-dimensional collages, the assembled heads provided scope for visual metaphor not dissimilar to Picasso's witty and ingenious use of recycled objects.

Many of these ideas have their roots in Surrealism where the found object is metamorphosed by change of function and context. Plates 230 and 231 by Martin Eldridge exploit fluted pilasters and classical mouldings in a humorous and dignified manner, while Plate 232 provides a very satisfying form with the minimum of intervention on the part of the sculptor. A part of the challenge facing the student assembling such disparate materials is the integration and compatibility of form. It was quite a demanding exercise in sculptural synthesis. Plates 233 and 234 present the idea of head as face and mask which reveals its interior space and draws the spectator behind the mask, thus inverting the role of

subject and object. The complex contraption by Lloyd Gibson (Plate 235) was conceived as a machine for producing 'high art', not dissimilar to Tinguely's painting metamatic machines. Something of the complex narrative behind Gibson's work demonstrates the influence of Duchamp's 'Large Glass'. Other works like Plate 236 demonstrates a playful use of material exploiting the contrast between solid, void, line plane, but, above all, projecting an image with a haunting extraterrestrial presence.

Selective images were mainly concerned with the idea of the transformation of form by the process of enlargement, although this began as an extension of collage work. A number of students would prevail on a local advertising agency and bring in large fragments of billboard posters. Originally, Richard Hamilton was concerned with extending the range of collage material, feeling that the colour magazines were too limiting in scale. Also by bringing in huge fragments of cinema posters and advertising imagery the studio environment was altered in a dramatic way. These huge images brought into the confined interior space underwent a dramatic change due to the new context and relationship with the spectator. Some images, by sheer virtue of scale, became threatening, menacing and overpowering. This was particularly the case with food advertisements where a humble piece of cheese or salame took on a most sinister aspect when blown up on a grand scale. Certain common objects when experienced in enlarged form, failed to yield their identity completely. What began as an extension of collage imagery became an exercise concerned with enlargement and selection.

Richard Hamilton quoted the case of Man Ray who asked his photographic students to take their worst negatives and redeem them by means of

searching selection under the enlarger. Even with a featureless image, the process of enlargement and search can yield the unexpected, and force the student to look and think, and seek out new possibilities which would not be apparant with more readily acceptable negatives. Many students would adopt a distinctively photographic approach by cutting out a square viewfinder in card or paper, and use this to scan the surface of the billboard fragment, selecting and cutting out the most interesting fragments. Frequently the experience of exploring the surface of a familiar object enlarged to such proportions, gave one a new perception of the inherent landscape of the object.

The notion of enlargement in order to demonstrate the molecular structure of marks which go into constructing an image, has already been noted in Rita Donagh's account of the blown up Durer. Certainly the Pointillist dot structure of the billboard poster is readily apparant and one returns full circle to the point exercises. At the same time Richard Hamilton was exploring this idea in several of his works during this period.

Perhaps the most obvious is 'A little bit of Roy Lichtenstein for . . .'
(Plate 237), produced in 1964, which is a silkscreen print of an enlarged fragment of the weeping girl images which Lichtenstein used as a poster for an exhibition. Hamilton's intention was to take the Lichtenstein idea of transformation through enlargement a stage further. Lichtenstein blows up the comic strip and transforms the image by presenting a slightly more formalised version of the original. Hamilton enlarges the Lichtenstein and carries the proces of abstraction a stage further.

In 1965, Hamilton began a series of prints based on a postcard of the beach at Whitley Bay. These prints consist of enlargements which enhance

the half-tone dot structure of the commercial postcard, and as Richard Morphet points out, Hamilton explores the idea that the judicious cropping of a photograph in itself is a positive creative act. Enlargement and cropping became the essence of the selected image exercise, and the 'People' prints based on Whitley Bay develop the idea of enlarging detail after detail, until the image dissolves into indeterminate blobs (Plate 238). It is the exploration of the legibility of an image as well as a reassertion of the all pervasive point. 'People Multiple' of 1968 is a further development of the Whitley Bay postcard, which presents us with a pull-out card in which each successive image is an enlarged detail of the last, so that the final picture is divested of any figurative reference, consisting of two shapes which look disquietingly like a Victor Pasmore. In 1968, Antonioni made the film 'Blow Up' in which the plot revolves around the identification of a dead body fortuitously discovered in a photographic enlargement. The key image in the film is the successive grainy enlargements of the indeterminate shape which emerges as the corpse. It was no coincidence that Antonioni chose Ian Stephenson's grainy, atomised paintings as a backdrop for one of the 'Blow Up' sets. All these images are about the theme of perception and the patterns we construct, and the meanings we infer from elementary visual data.

The specific perceptual concerns, just outlined, were more marginal to the interests of the students working on selected images. Initially students found a sense of novelty and surprise through the impact of familiar imagery brought into the more intimate space of the studio interior. The enhanced scale allowed students to get inside the imagery and, as in the case of Stephen Buckley's oranges, this acted as a bridge

towards the object analysis of the final term. Many students encountered qualities of sensual, soft-focused luxury in much of the imagery and enjoyed exploiting ambiguities of shapes and forms for their abstract potential and in some respects the exercise became a variant on shape making, and some of the results (Plates 240 and 241) do resemble some of the more fluid abstract shapes that one encounters in Pasmore's paintings of the mid-sixties (although it must be stressed that Pasmore had left Newcastle when this work was carried out). Plate 242 shows Richard Hamilton surrounded by some of the billboard imagery giving some idea of the environmental impact of the work. Plate 243 shows Victor Pasmore on one of his periodic visits to the department in 1963 looking at Stephen Buckley's oranges which began as selective images and were further explored in the analytical project.

Analytical Drawing, Painting and Sculpture.

The final term, up to the examination, was given over to analytical drawing, painting and sculpture, which normally took the form of object analysis. Usually students were asked to select an object which had a particular meaning and interest for them, and sustain a six week analysis of that form in two and three dimensions. Ironically, although this was the least throw away of the first year projects, it is the least documented. For the same reason that sculptural work was less documented, those more substantial works which could not be stored in plan chests were not kept by the department, and only analytical drawings remain.

What was interesting about the project was the breadth and diversity of

interpretation. The notion of object was applied to such diverse forms as the cricket match, cuckoo clocks, toothpaste tubes, lemon squeezers, artificial limbs and Charlie Chaplin's trousers. Most of the analytical drawings which survive do reflect a certain preference for the mechanistic and diagrammatic drawing in the Duchampian and Picabian mould. This obviously reflects Hamilton's influence but it is also worth pointing out that Madame Picabia gave a memorable lecture on her husband's work in 1964. Kevin Egan Fowler's cigarette making machine (Plate 244) bears an obvious similarity to Duchamp's 'Coffee Mill' in its diagrammatic emphasis on process. The challenge was to take something non-descript and to expose the unexpected and the remarkable. In his statement in 'An exposition of she', Hamilton says:

I would like to think of my purpose as a search for what is epic in everyday objects and everyday attitudes.'⁴²

Such unprepossessing objects as an atomiser (Plate 245), with all its mechanical simplicity provides the basis for a series of animated drawings which, again, places emphasis on mechanical processes. This object, along with Susan Carter's 'Zip' (Plate 246), Jenny Dixon's lemon squeezer (Plate 247) and Plate 248, all have the same self-explanatory nature. The analytical drawing of the cranked mechanism (Plate 249) beautifully expresses function, causality, process and movement. All these drawings qualify as 'diagrams of thought processes' and represent a natural outcome of Richard Hamilton's teaching.

One example of analytical relief sculpture can be seen in Plates 250, 251 and 252, based on an old wooden paint box containing tubes of oil paints (Plate 253). A number of analytical drawings were made of the paint tubes in various contorted, twisted and compressed forms, and from the labels were abstracted the dancing shapes which were cut out of plywood

and mounted on a base which slotted into a box and could be adjusted up and down like a sash window. A corresponding painting was made in which a paint palette was drawn onto the picture surface and used for that purpose in painting the rest of the picture. It was a painting which incorporated the means of its own making. Some analytical projects were prompted by the images which came out of the selective image exercise. Some students obtained a rich source of imagery in the form of cinema posters and film stills from the Tatler News Theatre and it was from this source that Richard Hamilton found the image of Patricia Knight in the film 'Shockproof' which formed the basis of his interior series. One student, Malcolm Smith, spent most of his summer term in the Tatler News Theatre watching Charlie Chaplin films and his analytical project was realised in a monumental sculpture of Charlie Chaplin's baggy trousers.

The selective image project may also have influenced Stephen Buckley's orange project in so far that the scale of the poster imagery must have facilitated a deeper analytical grasp of the surface and interior structure of the oranges (Plates 254, 255, 256, 257 and 258). Of this particular project, Marco Livingstone states:

'Buckley chose an orange, which because of its two meanings - as a fruit and a colour - gave him a flexibility of scope which he enjoyed enormously. The possibilities seemed endless and included two-dimensional representations as well as a sculpture of oranges, collections of posters of oranges, the examination of the (often incomplete) jaffa rubber stamps on their skins, and the gathering together of different tissue papers used to wrap oranges for transport.

"I think it was the first time I became identified with something I'd done," recalls Buckley with a certain nostalgia. "I was the boy who did the oranges."⁴³

The analytical project was the only part of the course which provided scope for the permanent realisation of fully fledged paintings and sculpture, and it is small wonder that Stephen Buckley, like many others,

for the first time felt some sense of achievement. How permanent the impact of the course as a whole was on Buckley's subsequent work as an artist is raised by Marco Livingstone:

'The emphasis of the Basic Course was analytical, involving various kinds of exercises within a fundamentally abstract idiom. It is tempting to view this training as a formative influence which moulded the analytical considerations which Buckley took into account in subsequent work. In terms of the (often unconventional) materials and types of construction of which he had made use since the mid-1960s, it seems almost as though he formulated a conscious plan to examine as many ways as possible of making a painting, and to present the basic elements of a twentieth century abstract painter's vocabulary within the context of a personal idiom.

"I don't know if my thinking was moulded by the course," muses Buckley, "but it certainly brought it out. It must have been a way of thinking which was dormant within me."⁴⁴

These wider questions on the impact of the basic course will be considered in the final chapter. However, before concluding this section on course content there are factors which Stephen Buckley raises, which contribute to the quality of a student's experience and which cannot be itemised like individual course exercises. A foundation course, like a good Gestalt theory, is more than the sum of the parts, and what ultimately makes it a successful experience for students is that elusive quality which Walter Gropius described as 'atmosphere'. Contributing to that atmosphere was a sense of being in the forefront of creative activity and having important artists visiting the department lecturing, and contributing towards the teaching. Among the visiting artists between 1962 and for 1966, for example, are included Richard Smith, Eduardo Paolozzi, Joe Tilson, Terry Frost, Robert Medley, Peter Blake, R B Kitaj, Sandra Blow, David Hockney and Quentin Bell. Many of these visits and lectures were organised in relationship to important exhibitions in the Hatton Gallery, such as the Picabia exhibition of 1964 and Paolozzi's exhibition of 1965. Important projects were underway,

such as the removal of Kurt Schwitters Merz from Ambleside to the Hatton Gallery and Richard Hamilton's reconstruction of Marcel Duchamp's 'Large Glass' for the Duchamp retrospective at the Tate Gallery in 1966.

Richard Hamilton's interests and connections explained a lot of this activity, and following his first trip to America in 1963, a whole new world of American art was opened up to students. Mark Lancaster went to New York in 1964 and made contact with Jasper Johns, Andy Warhol, Frank Stella and Henry Gledzahler, and was responsible for disseminating a lot of information on American art throughout the department. In 1964 Jasper Johns and Robert Rauschenberg held their first retrospectives at the Whitechapel Gallery, so there was justifiably a sense that Newcastle was at the sharp end of post-war modernism. As Stephen Buckley has stated:

'Those early years of Pop Art in England were quite heady times. Everything was bursting. There are those crushing bores that go on talking about the sixties, but the beginning of the 1960s really was exiting, everything seemed to be blossoming. It did seem as though as soon as the Wilson government arrived, the white hot age of technology, or whatever the phrase was - it seemed as if everything was possible. And I don't think that's just the age one was. You know that thing in Fitzgerald when he says it was great to be in one's twenties in the twenties, in the jazz age? Well it was great to be in one's twenties in the sixties.'⁴⁵

The analogy with the jazz age is apt, because on the wider cultural stage Newcastle was the centre of innovation in Pop music with Alan Price and Eric Burdon performing regularly at student hops, and Bryan Ferry began his art and musical career as a Fine Art student with Richard Hamilton in 1964. There was also a thriving literary scene around the Morden Tower Bookroom where Tom Pickard was responsible for introducing such figures as Ferlinghetti and Ginsberg to the North East. It is within this wider creative climate that the foundation course has to be understood to function.

Conclusion

Stephen Buckley's comment that the basic course may not have moulded his ideas but did bring out a way of thinking which lay dormant within him, raises one of the essential issues in basic design pedagogy. It was the purpose of basic design pedagogy to release the innate potential of the individual rather than impose ideas, methods and techniques from without. Richard Hamilton constantly maintained that he saw little point in propagating styles and ideologies, professing that the purpose of his teaching was to suggest ways of thinking. In common with other basic courses, the emphasis was in generating right attitudes, ways of thought and critical insights, rather than passing on received knowledge and techniques. Ideally, the student would be engaged in an experimental and open ended, developing activity, rather than perfecting skills by rote drawing and painting.

It is, as David Thistlewood has stated, a process dominant way of working in which the creative means are more important than the ends, and it was assumed that if the creative attitudes, thinking and dynamics were right, then the accumulation of skill would be acquired as a matter of course, as and when needed. It was a question of generating ideas which would determine the techniques required, putting ideas in the driving seat, which would then create the momentum for technical discovery.

This emphasis on thought process and free experimentation as opposed to the technique dominant modes of more traditional art courses raises the old dichotomy between education and training. In one respect, the basic design courses represented another stage in that long historical shift in

art education from the narrow vocational training of the eighteenth and nineteenth-centuries to the broader concept of art as a basis for education in general. Although Richard Hamilton had little time for Herbert Read, both men had a broad vision of the purpose of art education, seeing it not just as a vocational training for artists. Read had a Platonic view of art as the basis of all education¹ and Hamilton stated that he wished to produce, not just artists but:

'people with good minds, who are capable of seeing society as a whole, trained to think constructively though not necessarily productively.'²

Pasmore likewise had a broad vision of the artist unconfined to one discipline, who could think across the old divisions between painting, sculpture and architecture, bringing together:

'in spirit where it is not possible in practice, all branches of the visual arts which are necessarily separated through technological, social and economic differences.'³

It was this wider vision of art education in general, as well as the particular role of the foundation course as the bedrock for a multiplicity of subsequent artistic developments, which of necessity prevented the basic course from fragmenting into technique and skill based activities. The course was concerned with ideas, aesthetic generalities and a rapid turn-over of ideas. Complex and sophisticated technical processes were avoided as a handicap to the free flow of ideas and the technical means were kept fairly simple, being restricted to pencil and charcoal on cheap lining paper, colour exercises in poster and oil paint, and a very basic use of clay, plaster and wood in the sculpture studios. Richard Hamilton, who was steeped in many sophisticated graphic processes, and who was pioneering work in photo-silkscreen printing and the use of computers, was frequently criticised for not passing on this technical knowledge to a wide section of his students. Although he readily

accepted that techniques could be taught, and he had passed on his knowledge of etching to a number of students, nevertheless, as director of the foundation year he showed some reluctance in digressing into technical teaching, preferring to exchange ideas rather than techniques.

This priority given to ideas and attitudes, rather than techniques, has provided the basis of most of the criticism aimed at basic design teaching. It is frequently stated that the students lacked basic skills, and as Erik Forrest has pointed out, the thrust of the more idea based modes of art teaching did lead to the aridity of much of the conceptual art of the seventies, and the crisis in art education where at one extreme, Art Language influenced students at the Lanchester Polytechnic in Coventry, submitted statements rather than artifacts for their final degree assessment.⁴ Basic design teaching formed only a part of this shift towards more conceptual modes of art teaching and it would certainly be wrong to ascribe the intellectualism of the seventies to basic design teaching alone. However, many students who followed the course at Newcastle did feel that they lacked basic skills, and Stephen Buckley bemoaned the fact that he didn't learn to draw. There is no doubt that many students at Newcastle were able to bypass traditional modes of painting, drawing and sculpture proceeding to abstraction and other non-traditional forms of production. Pasmore could easily dismiss representation, or naturalism, as obsolete and unrelated to the main thrust of modern art, but many students felt that they lacked, and should have a grounding in traditional drawing skills.

This begs the question as to what constitutes drawing. Most students still regarded a good grounding in drawing in terms of representation.

> Stephen Buckley's admission of his own short-comings was made in reference to David Hockney's work. However, what Newcastle sought, was to widen the terms of reference beyond representation and naturalism. Richard Hamilton suggested other possibilities for drawing, usually of a more diagrammatic nature. Pasmore, who was said to have tweaked the ears of offending students caught in the life room, did not regard life drawing as relevant to the new art education, but nevertheless made drawing, and his demonstration of its process, the main plank of his teaching. What was certainly lacking in the basic course was objective drawing from nature and primary sources. The issue is one of balance, as life drawing was sustained and encouraged by Richard Hamilton and imaginatively taught by Rita Donagh, but it did not have the priority and status it enjoyed in most art schools at that time when several mornings each week would be given over to life study. Landscape study played no part in the course but as we have seen in the analytical project, object drawing was quite important. One little recorded fact is that perspective drawing was taught for a session a week by Louise Hodgekinson, consisting mainly of still life and interior studies. This was not just taught as an exercise in observation and measurement, but as a mathematical and theoretical discipline. Much drawing activity was sustained for the benefit of architectural students who needed to cultivate drawing skills, although this had little influence on art students, and little architectural drawing, as such, came out of the department. The evidence is that a degree of representational drawing did take place, but on balance, compared to other art schools, drawing from nature, or primary sources, did not constitute a central role at Newcastle, particularly under Victor Pasmore's direction.

Many students, complained that there was too much drawing, that there was a graphic orientation, and what was seriously missing was strong painterly activity. The only scope afforded to painting, and paint manipulation, was within the confines of the colour projects, although Ian Stephenson tried to rectify this position later when he took over the course in 1966. Most of the exercises were explored in the media of charcoal and pencil, and in one sense it was drawing which underpinned the course both technically and intellectually. If 'drawing is the probity of art' , then it was admirably suited to the task of searching out the solutions to problems and responding to the propositions central to this course. Drawing was the natural activity for a course of this type and it could be argued that Pasmore and Hamilton sought a wider scope and definition of drawing. Drawing activity was seen primarily as a mode of thought rather than manual skill, and in this sense both Pasmore and Hamilton sought to reassert Ingres' famous dictum. As a mode of thought, drawing was used as a tool for analysis, rather than follow its traditional function of description and illustration.

It was this systematic analytical emphases which distinguished the Newcastle course, making it a paradigm of the analytical/reductionist approach which Paul Vitz and Arnold Glimcher argue forms the basis of so much modernist thought.⁵ In terms of life drawing, this can be seen in the shift from descriptive anatomical life drawing towards a much more selective, reductionist consideration of the elements and how they relate to the model. Much traditional life drawing in the art schools, was conducted on the basis of practice makes perfect and drawing by rote, and this method produced a degree of competent descriptive drawing of the model in general terms. Quality, and modulation of mark and line, was

seen frequently in terms of how they rendered the form in three-dimensions but the Newcastle method sought to free drawing from that descriptive role and give the marks and lines a degree of autonomy and self-sufficiency which an academic training could not permit. In the case of life drawing, it was not just a formal exercise in releasing the elements and allowing the lines and marks to be free standing, but students were required to consider more selectively and rigorously such questions as measurement, proportion, axes, rhythm, contour, colour, lateral sections, multiple viewpoint, movement, surface and all the other categories of shape relationship, area division and so forth. Anatomical considerations may have been a low priority and some may argue that to relegate such factors is a negation of the whole point of life study. No doubt the side stepping of anatomical issues was a way of avoiding the descriptive mould of drawing in order to set out an alternative series of propositions. The whole point of the Newcastle course was to break the mould, abolish habits of thought and preconception, explore new, challenging possibilities, and make the students think.

Drawing was at the heart of the foundation course, but it was not the traditional sort of drawing as it served a different non-descriptive function. Pasmore was more anxious that through drawing students would understand how to produce good lines and shapes, develop a sense of rightness of form, of balance and proportion. In order to do this, isolation of the elements was necessary, and this meant a shift from representational drawing, painting and sculpture. In order to understand line, shape, colour, point, plane and so forth for their own sake, they had to be studied without reference to the outside world. This form of study, as Pasmore intended, could also form an objective base on which an

abstract art could be assembled. It was mainly for these reasons that drawing, painting and sculpting from nature did not play a central role.

As the course developed under Richard Hamilton, figurative and representational ideas were introduced and it could be argued that with the analytical project in the third term, the course climaxed with a return to the natural world of objects. It was Hamilton's intention that some kind of balance between the abstract and figurative worlds be maintained, although what constituted Hamilton's figurative world was frequently drawn from secondary sources, in signs, symbols, science journals, magazines and advertising. Hamilton tried to indicate other sources for figuration which to some degree side stepped traditional forms of observational practice and representation.

The post-war issues of abstraction and figuration are mirrored in the course and the problem was to find an adequate balance which would serve the needs of the potential abstract or figurative artist. Pasmore saw his course as only serving the needs of abstraction and for that reason acknowledged that it was little use to the aspiring figurative artist and therefore should be an option for those interested in abstraction only. Both artists were committed to modernism but Hamilton did not share Pasmore's identification of modernism with abstraction. Not all modern art was abstract and as a painter of the modern world Hamilton was seeking a means of projecting that world, mainly through secondary sources. Images in the form of photographs, advertising and collage represented a source and pictorial means of presenting an alternative view to Euston Road realism which also claimed to represent the modern world. Except in the image project where there is an overt reference to

advertising, Hamilton avoided presenting students with sources close to his own work. Nevertheless, the secondary nature of the sources which were discussed was a consistent factor in his teaching. This was natural because he was trying to indicate other worlds in microscopy, science textbooks, perception, biology, semiotics and many other spheres, which students had never considered as having anything to do with art. In his teaching and discussions Hamilton would constantly refer to the world of science but rarely draw from the world of art in seeking exemplars. Those artists most discussed tended to be those who, likewise, had found their sources in the most unlikely places, like Duchamp or Schwitters. While it is laudable to indicate the breadth of possibility in these sources, and one can understand that the modernist thrust to his thinking necessitated a reluctance to follow traditional paths, nevertheless there was an uncertainty in the handling of primary sources. Hamilton did indicate that there was a whole world in Pilgrim Street to be explored, but at no point in the course were students encouraged to go out into Newcastle and explore what is visually a spectacular industrial environment. Unlike today's course where William Varley takes students to the quayside and the Swan Hunter shipyard, Hamilton's students remained, generally, confined to the cerebral world he had created in the studio.

In spite of the influence of D'Arcy Thompson, few students ever drew directly from primary natural sources. The appeal of D'Arcy Thompson was essentially self-contained within the work itself, in the beauty of his language, his insights into the mathematical structure of the natural world and its processes, the breadth and magnitude of his intellect, and the quality of its illustrations and diagrams. Beautiful as the book is,

nevertheless it remains a book, and, it is characteristic of the intellectual climate of Newcastle, that students should confront nature, primarily through a book, rather than the natural world itself. In contrast to the St Ives artists who abstracted from natural forms in a free and intuitive way with a sense of direct contact and experience within, and in the case of Peter Lanyon, above the landscape, Newcastle remained aloof from the natural world. The difference is exemplified in the teaching of Peter Lanyon at Corsham, who marched his students into the landscape, and Terry Frost's constant reference to the visual world as a source for colour analysis. Clifford Ellis, the principal of Corsham, equally influenced by D'Arcy Thompson, built up a considerable collection of natural specimens for students to study and encouraged the development of a visual biology laboratory run by Geoffrey Spencer for the benefit of art and education students. Much of the detachment at Newcastle can be explained by its urban environment, but more is due to the Pop attitudes celebrating urban life, new technology and a vision of the future. It is a particular view of urban life expressing a degree of glamour and style which excluded the world of heavy industry and explains why students rarely visited the quayside and shipyards. Pasmore's rejection of the natural world as a source for the artist and his own vision of the new art in abstract and constructivist terms also reinforced this aloofness from the natural world. However, the issue is not so much the man-made world as opposed to the natural world, the urban and the rural environment, but how the students confront primary sources in the visual world. In one sense we return to the Pasmore/Biederman debate on how one abstracts from the visual world, or if one needs the visual world from which to abstract.

Biederman argued that the artist must be rooted in nature and that meaningful abstraction could only take place grounded in an understanding of nature's structures and processes. Pasmore denied this, arguing that the elements themselves; the points, lines and planes, constituted the primary sources for the artist. Hamilton widened the debate by questioning what constituted the visual world, not only in terms of its content but also our perception of it. In some respects Hamilton tried to bridge the gap between the totally abstract formalism of Pasmore, and Biederman's injunction to hold fast to the natural world. Hamilton did this in two ways, by relating the formal investigations to observable facts, and by broadening the visual field into figuration and other concepts and categories outside immediate visual sense experience. Relating formal elements like point, line and shape to the world of appearances was a very important part of Hamilton's teaching and this was one area where students were encouraged to refer to primary sources. The results of this tended to be very analytical, and sources, whether they be the life model or the studio interior, were used within the specific confines of the exercise in hand. Primary sources were used in a highly selective way serving precise formal ends. These sources also came into their own in connection with the transformation exercises and object analysis. However, what distinguished Hamilton's teaching, and what represented something of a challenge and polemic in art and art education, was the use of secondary sources.

One of the most controversial aspects of Pop art was the use of secondary material in the form of advertising, glossy magazines, science journals and so forth, which brought into question the whole function and status of this material in the sphere of fine art. When Hamilton broadened the

visual field in the foundation course, progression from primary to secondary source was necessary. When Hamilton extended the content of the course to embrace the world of science and advertising this enlargement of visual possibilities, necessitated the distancing of the student from that which was visually immediate and experiential. That which could be sensed and encompassed by the human eye, gave way to a world received through the intermediary of the microscope, the telescope, the camera, television, the textbook, science fiction and colour magazines. These realities were several stages removed from immediate sense experience, in so far that they belonged to conceptual frameworks which represented degrees of abstraction in themselves. As an alternative to traditional representation in front of the motif, Pasmore and Hamilton posed two forms of abstraction, one which was formal and one which was conceptual. Neither was committed to grappling with the raw, undifferentiated sense impressions which make up the primary source of our immediate environment.

The whole question of primary and secondary sources needs some comment because it is an important issue in Pop art and art education in general. The question raised is what constitutes a primary source. As mentioned in an earlier chapter, the world of the 'New Musical Express' and the motor cycle magazine may be more real to a teenager than the contemplation of nature. A television programme could be just as awesome an experience as being lashed to the mast of a ship in a snowstorm. Who is to say that one form of reality is inferior to another? The criticism of secondary sources is that they are ready processed and packaged images, that they provide less space for creative interpretation. But it could

be equally asserted that even the most raw and undifferentiated sense impressions reach us in a processed form. As Neitzche has stated:

'Everything that reaches consciousness is utterly and completely adjusted, simplified, schematised, interpreted.'⁶

Everything we receive in the eye is subject to processing by virtue of our experience and knowledge and for this reason the notion of the innocent eye is a delusion. In one sense there is no such thing as a primary source but as in most aesthetic matters we are dealing with a sliding scale and matters of degree. It is a question of how far the image is categorised and removed from its source. As far as creative interpretation is concerned, it can be argued that within certain conceptual frameworks, secondary sources are far more amenable and workable than primary sources.

Taking the example of portraiture, anyone painting a picture of Marilyn Monroe would no doubt find attractive and interesting sources in photographs, but could these possibly be as rich, vital and exhilarating as the experience of painting her from life? In one obvious sense a photograph is a poor substitute. Live contact in portraiture necessarily involves a degree of intimacy between artist and sitter, and if the intention is to express the sitter's private character and inner feelings, then personal contact is of the essence. The Pop artists were not interested in portraiture, as such, but in symbolic and iconic modes of presentation. The Pop artist is better served by photographs than the living source, because he is interested in the abstracted and conceptualised notions of stardom and glamour which are more appropriately exemplified by the processed, public, photographic image. Like the Greek artist, the Pop artist is concerned with idealisations in so far that he

presents the person as he or she ought to be rather than how they are. The image is schematised, refined and abstracted from its natural source. Marilyn Monroe is projected as a Hollywood package rather than a real person. Unlike Andy Warhol, Hamilton ironically inverted this public glamorous image in 'My Marilyn' by dealing with those photographs which she rejected for public consumption (Plate 70). Hamilton's painting is about her self-image, but it also alludes to her state of mind and capacity for self-destruction. The painting is a complex overlay of symbols which serve the conceptual structure of the picture, and his understanding of semiotics assists his manipulation of schematic symbolic imagery. Live contact with Marilyn Monroe would not have been useful and might have detracted him from his purpose. Secondary sources distilled from the natural world served best the conceptual nature of both Hamilton's work and his teaching.

Hamilton's conceptual approach to all artistic matters meant that he was uneasy in dealing with visual data which were less amenable to intellectual control. The raw, undifferentiated material of sense experience of the observable world was not readily assimilated within the teaching of either Hamilton or Pasmore. The formalism of Pasmore, and the conceptualism of Hamilton, did distance the students from an intimate engagement in the tangible observable world. Where primary sources were used in order to relate formal concerns with observable fact, they were used in a highly analytical and selective way. Although Hamilton states that it is possible to seek correspondences between abstraction and visual appearance, deriving rhythms and point groupings and so forth from an observable source, this was rarely synthesised in a free and intuitive manner. Unlike Terry Frost and Peter Lanyon, Pasmore

and Hamilton did not provide a natural means whereby primary sources could be mobilised towards abstract ends. At Leeds and Corsham, students were put in contact with landscape and all the visual resources plundered from the defunct Rippon Museum, whereas at Newcastle students investigated abstract form with little reference to the outside world, and other visual concepts were expressed in terms of signs, diagrammatic expositions of optical illusions, Cartesian grids, advertising imagery and so forth.

If we accept Kant's polarisation of the world of sensation on the one hand, and concept on the other, then there is little doubt that Pasmore and Hamilton attempted in their manifestos to swing the pendulum towards the realm of concept. Sensation and taste had little place in Hamilton's teaching, and this explains his reluctance to deal with colour, which is intellectually ungovernable, and involves an infinite range of relativities and subjective matters of taste and preference. If colour could be clasified as Kleenex pink, or Frigidaire blue, or be seen to function in a way which could be explained by optical law, then Hamilton could deal with it within those conceptual frameworks. In the case of Hamilton it was not just a failure to confront undifferentiated sensations, but also an unwillingness to accept feeling and intuition, except in the margins of creative production. Hamilton was anxious to dispell the notion that art was something you feel rather than think about, and for this reason he consciously relegated the subjective and intuitive aspects of art. For this reason, at its worse, Hamilton's teaching could descend into arid intellectualism lacking the animating, and synthesising force for intuition.

Victor Pasmore argued that modern art was 'conceptual' rather than 'perceptual' and in his writing stressess the objective and analytical procedures in his course. Both Pasmore and Hamilton argue that their courses, of necessity, must be objective, superceding the intuitive and emotional emphasis which prevails in the teaching of younger age groups. Although Pasmore may have stressed the conceptual and objective aims of his teaching, it is evident that in practice, his teaching had far more to do with sensibility and quality, which he vividly demonstrated on the blackboard. For Richard Hamilton, 'manipulative charm' graphic qualities and personality, were coincidental by-products of a thought process. However, even Richard Hamilton, at the weekly 'crits' and in his individual conversations with students was not averse to drawing attention to quality, and the word 'beauty' did form a significant part of his vocabulary. In the 'crits' and discussions, success or failure of a particular exercise did not hinge entirely on intellectual solutions to problems, because both Pasmore and Hamilton were aware that a training of sensibility and discrimination was essential in establishing a new set of criteria. Awareness of what constituted a good line, a satisfactory balance, a subtle proportion, a pleasing harmony, a vibrant colour, and so forth, depended on nurturing sensibility which relies as much on feeling and intuition as on intellect. It has frequently been said that Victor Pasmore was a man of exquisite taste rather than profound intellect, and in the last analysis, it could be argued that it was primarily his taste which he communicated to his students. Paradoxically, in spite of the intellectual posturing and intentions of both Pasmore and Hamilton, sensibility and intuition did underpin much of the course and played a major role in determining criteria.

So far, I have indicated that the personalities of Pasmore and Hamilton were complementary and that the subsequent course reflected the broad division between the abstraction of Pasmore and the figuration of Hamilton, but to divide the course into the realms of abstraction and figuration in too simplistic, creating an either or situation. One cannot polarise art simply into the categories of abstraction and representation, because all art involves a degree of abstraction and no art can be completely abstract and devoid from the world of experience and association. In one sense the value of the course was in the way in which it heightened the student's awareness of the dichotomy, and perhaps engendered an awareness that the most enduring art holds both in balance. Pasmore frequently drew attention to the fact that some forms of Renaissance naturalism were contained within the fabric of geometry. In some cases the course generated a schizophrenic awareness of the tug of war between abstraction and figuration. Some students were able to subsequently capitalise on the creative tension and rich ambiguities achieved by holding both in balance. Rita Donagh, who was on the receiving end of the formalist teaching of Victor Pasmore and Ian Stephenson says:

'It certainly didn't make me a formalist. It left me with a split of divided loyalties and a love for the formalist approach to art and its opposite.'⁸

Rita Donagh's subsequent work with its delicately drawn grids, diagrams, maps and photographic references, provides an elegant synthesis of so much of the teaching of Pasmore and Hamilton. In contrast to Donagh's elegant and hybrid art, Stephen Buckley's work demonstrates a willful brutalism in the way he slashes, stitches, and stretches his coarse, paint loaded canvases. After a period of total abstraction at Newcastle, Buckley decided to steer a middle course. As Marco Livingstone states:

'Buckley, though, was after something more intransigent than the wishy-washy ambiguity that characterised much abstract painting in Britain in the 1940s and 1950s. The dual readings which occur in Buckley's work are equally clear and specific. 'Toni's Restaurant' (1969), for example, has a vigorously geometric pattern which bears comparison with the work of the de Stijl group, but it also alludes to table-cloths in cheap restaurant interiors . . . Buckley agrees that he has perhaps been worried, as have other twentieth-century painters, that depiction in a traditional sense would somehow threaten the sovereignty of the paintings, making them illustrations of things external to them and thus stripping them of their physical presence as things in themselves. "There's some sense in that, because I feel it would dilute what I am doing. It's a question of keeping the force of self-sufficiency and representation in balance. If it falls heavily on either side, then I lose what I have found."'⁹

The subsequent course under Richard Hamilton did try to achieve some balance between abstraction and figuration. Under Pasmore, balance was not an issue as he saw his course only directed towards abstraction. But how balanced was the subsequent course, and is balance a necessary condition for good art educational practice? As I have implied, the course was overweighed in its formal and conceptual emphasis, giving limited scope for spontaneity and feeling, as well as standing aloof from primary sources. It could be argued that these were serious shortcomings, but would a more balanced approach have diminished the cutting edge of the course? Would Pasmore have been a more effective teacher if he had moderated his zeal for abstraction and presented a more balanced and representative view of modern art? Is it not the case that in order to innovate and change direction, the case has to be overstated in order to get the point across? Few people would agree with Le Corbusier that a house was a machine for living in, but most would accept the appeal for functionalism and efficiency of design implied by the statement, and the necessity of his uncompromising stance against the plethora of bric-a-brac, over-ornamentation and sham which characterised the legacy of

nineteenth-century design. Hamilton's conceptualised and intellectualised approach was uncompromising but it was a necessary antidote to the unquestioning rigours of technique based modes of training. The set patterns of pictorial composition, still-life and figure study, which characterised most 'A' level courses and which conditioned most student's notions as to what constituted the categories of art, were blown apart by the challenge of the teaching of Pasmore and Hamilton. Abolition of preconception was the aim of the course and it is unlikely that the student's horizons would have been widened if the course had been circumspect and balanced. Movements in art education, like other movements in art, are often a critical reaction and challenge to prevalent assumptions. Circumspection and balance are not the characteristics that one would associate, or expect from innovative movements like Futurism, Dada or Abstract Expressionism. Art education, although arguably more accountable than those movements forged by individuals and free spirits, is nevertheless a part of the ebb and flow of modernism and should not be necessarily subject to markedly different criteria.

The abolition of preconception and the wiping of the slate has brought in much criticism, most commonly that of brain washing, and the question must be raised as to how prepared post 'A' level students were to face the challenge. The cerebral nature of Richard Hamilton's course, in particular, challenged students preconceptions and many felt much insecurity at having the rug pulled from under them at such an impressionable age. There is in Richard Hamilton's course a disappointing gap between the results, and the depth and significance of some the ideas which governed the tasks set. This has already been observed in the case of the transformation and projection, and sign and situation

exercises, where some of the results appear comparatively superficial and tangential to the main thrust of the course. In certain areas where there were specific sources, texts, or required familiarity with such fields as semiotics, it was more difficult for students, unacquainted with these ideas, to engage in them and resolve them meaningfully in their own terms. It was a case that in certain areas, ideas were more difficult to pick up without travelling down a path which was particular to Hamilton's interests and experience. Where the ideas were more specific and conceptually based, as in the case of D'Arcy Thompson's transformations, or semiotics, the student needed more convincing as to how these concepts were relevant to his own particular needs and situation. The more successful projects, like the head images, had a more universal appeal and could be more readily assimilated into the student's experience.

In the case of Victor Pasmore, one has to question how reasonable it was to ask students to compose with the basic elements without reference to the visible world. As previously stated, Pasmore had climbed the ladder of naturalism, kicked it away, and immersed himself in abstraction, composing from within. The process had been a slow and natural one, and his abstractions and inner store of imagery are closely related to the forms he had previously observed in the natural world. Was it reasonable to force the pace with students, asking them to compose 'from the palette' without any experience of sustained observation of the natural world? Without that prior experience did the students have sufficient inner resources on which to draw? In the absence of those inner resources, it was natural that students would be dependent on the lead of such a charismatic personality as Victor Pasmore, whose demonstrative

methods of teaching inevitably produced predictable results. Pasmore managed to carry everyone with him by sheer conviction and the magical way he demonstrated his ideas through the beautiful and elegant marks which he made on the blackboard. Such a demonstrative method was bound to produce results which followed the Pasmore model, and it is evident from the work that students did produce characteristically Pasmore shapes, lines and marks. To some degree Pasmore did create artists in his own image and this was an inevitable outcome of a teaching method which was an extension of his own creative work. The students were his 'guinea pigs' or research assistants, and the result was just as emphatically a 'style', as the Euston Road style which dominated so many art colleges. While the style is clearly discernably Pasmore's, it is true to say that it was a short lived manifestation of basic course work and what is intriguing about those artists to emerge from Newcastle under both the direction of Victor Pasmore and Richard Hamilton, was their manifest diversity. Artists as varied as Matt Rugg, Rita Donagh, Ian Stephenson, Mark Lancaster, Stephen Buckley, Tony Carter and Tim Head, to name but a few, represent a wide spectrum of creative activity. Nevertheless, 'style' was something which Richard Hamilton recognised should be avoided at all costs and the remedy was to widen the scope of the course beyond the formal concerns of Pasmore. Pasmore's teaching has been inimitable and Richard Hamilton was well aware that he could not take on the charismatic mantle of Victor Pasmore. When Victor Pasmore departed in 1961 and Richard Hamilton took over the course, he realised that in place of Pasmore's revelation, he would have to apply reason in his teaching, and this may explain Hamilton's cerebral approach to the course. The force of Pasmore's personality, and the creative engagement of both artists in what was essentially a dynamically changing course,

also raises the question as to how appropriate it was to regard such pedagogies as models to follow.

My whole purpose has been to set the foundation course in the context of the creative issues of the period and demonstrate how the course content was woven into the warp and weft of two potent artistic personalities. Just as Gropius had dismissed the idea that the Bauhaus could be used as a model for Birmingham College of Arts and Crafts because what made the Bauhaus was its 'atmosphere', so one must consider the same point with regard to what happened at Newcastle, Leeds and elsewhere. What is clear is that although the Bauhaus made the basic design pedagogy possible, what actually informed the content of the Newcastle course was the immediate creative needs and interests of the artists concerned. The formal elements which can be identified as corresponding closest to Bauhaus pedagogy, spring more from the studio of Victor Pasmore and his taste and sensibility, than the pseudo-science and mysticism of Kandinsky, Klee and Itten. The Bauhaus had served as a precedence, an inspiration, a signpost, and a vague symbol of pedagogic modernism. It provided a loose basis for studying the formal elements, but how these elements were studied at Newcastle had a lot to do with Pasmore's creative preoccupations and little to do with the course content of the Bauhaus artists. Perhaps the true legacy of Gropius and the Bauhaus had less to do with course content than the belief in involving creative artists who were innovators at the forefront of their profession. It was William Johnstone's priority in his staff appointments, where numerous full-time artists made part-time contributions to the teaching. Above all, it is the inner dynamics which are generated when a number of powerful artists come together and affect each other. This was certainly

the case at Leeds with Thubron, Hudson, Frost, Dalwood and Davie working together, and much the same at the Central School and Corsham. For this reason all these initiatives are inimitable, and because they succeed or fail due to the particular nature of the individuals concerned and the specific creative issues of the time, they cannot sensibly be replicated.

Replicated they were and 'Basic Design' became the order of the day for the newly established foundation courses affecting many art schools, reaching down into the secondary schools, and spreading as far as Hong Kong where it is a corner stone of the secondary curriculum. To some degree Victor Pasmore, with his missionary zeal, was responsible for the wider dissemination of basic design thinking through his influential position on the Coldstream Committee. The Coldstream Committee consisted of William Coldstream, Sir John Summerson, Victor Pasmore, Eduardo Paolozzi, Robin Darwin and a number of provincial art school principals, who were responsible for one of the major changes in art school education this century. Under their deliberations, the old National Diploma in Design was to phase out giving way to a course, the Diploma in Art and Design, (later to be designated B.A. (Art & Design) which was to have degree status. The new degree was to require higher entrance requirements and its emphasis was on the wider 'liberal' education of the artist with less emphasis on vocational and occupational training. The introduction of art history and complementary studies was a major feature in the broadening of the artist's education. The structure of the new course would replace the old two year Intermediate Course plus two year National Diploma, with one year foundation course, plus three year diploma or degree course. The shake up in art education affected, not just the structure and status of the new course, but also the standing of

art schools of which, only one third met the approval of the National Council in Art and Design and its validating panels. Those art schools which did not receive validation had to concentrate their energies on providing foundation courses and vocational and occupational courses.

The new foundation, or pre-diploma courses, as they were originally called were to meet the following demands:

'Each art school should be free to construct its own pre-diploma courses without any reference to any national body. The general aim of these courses should be to train students in observation, analysis, creative work and technical control through the study of line, form, colour and space relationships in two and three dimensions. A sound training in drawing is implicit in these studies. All courses should include some study in the history of art and some complementary studies of the kind referred to later in this report in connection with diploma courses. These aims are expressed in very general terms and there are many ways in which they can be achieved. We think that art schools should be free to work out their own ideas.'

Already, with reference to the formal elements of line, form, colour and space relationships, basic design thinking is discernable in the Coldstream report, and Pasmore stated that the Ministry of Education accepted the case for 'abstract foundation courses'. The Coldstream report also urges that 'all students should receive some fine art training as the basis for any further specialisation' and that certain skills which are the province of 'fine art' should be taught beyond the pre-diploma or foundation course level regardless of the area of specialisation. The report is non-committal with regard to the term 'fine art', stressing a breadth of interpretation and avoiding a narrow easel painting definition of the term. What is clear is that 'fine art' would have a special place in the new diploma courses and that each art school should be free to evolve their own ideas as to how it could complement and serve the non-fine art areas. Pasmore argued the case

that his 'abstract foundation course' would be an appropriate activity and point of focus for all students regardless of their specialisation. Pasmore's course model was only accepted as appropriate for the first year foundation course and Pasmore resigned from the committee. As he stated in a recent interview:

'In no sense of the word is it a first year course. I'm still doing it.'¹²

It may be that Pasmore's arguments were valid, that his course was suitable for development beyond the foundation year and would have been an appropriate activity for all students, but in all probability the Coldstream Committee preferred to leave the choice of activity to each college. Basic design had its place in the foundation courses but it could not be promoted as a recipe for all art educational establishments at all levels.

Nevertheless, through Pasmore's influence basic design methods were adopted for foundation course teaching and it was the dissemination, and to some extent, the imposition of basic design in the newly created foundation courses which accounts for the movement's importance in art educational terms, and also for the degree of hostility it generated. As Richard Hamilton has stated, the rot set in when it became a prescribed activity for every art school in the country, changing it from an ad hoc, experimental engagement of a handful of artists, to an academic system imposed on establishments where there was no background of interest or commitment to it:

'Victor was a very powerful figure in the educational system, and became more so, because he was appointed to the Coldstream Committee. And he, when they were determining the regulations of the form of the diploma was very dogmatic and powerful in putting pressure on other people in committee. He was able to put it across that every art school should have a

basic course, and so this was by some strange anomaly of the British education system written into the ministerial levels as a requirement of art schools that they should have a basic course. And it meant that principals of art schools, who had absolutely no interest in the subject, no knowledge of it, and no desire for any knowledge of it, had to appoint people to do the job, and the whole thing became an absolute mess because something was being enforced which should have been the serious and genuine interest of the teacher and teacher student relationships. It became an enforced policy and system, and therefore quite rightly fell into disrepute.¹³

The whole basic design initiative became victim of Victor Pasmore's missionary zeal. As recently as 1985 Victor Pasmore was enthusiastically suggesting that the new Arts Centre Gallery at the University of Warwick should initiate some practical activity along the lines of the basic design teaching he had observed at the Visual Arts Centre at Harvard. Pasmore's enthusiasms and convictions were then, as now, irresistible, and it was inevitable that the seed which he scattered should fall on much shallow and infertile ground. Once the course lost its internal dynamics, severed from the personalities who were actively engaged in it as an extension of their own creative researches, it degenerated into just another academic system.

The foundation course is still a prerequisite for most students wishing to proceed towards a degree in art and design and much has changed since the basic design courses of the fifties and sixties. Many of the issues and creative concerns within the course at Newcastle were specific to the creative climate of the period and the course represented something of a microcosm of post-war modernism. Can these events be written off as historical curiosity or are there factors which are enduring and which can still be relevant to current issues in art education? There is still the need for a foundation course which will serve the needs of all students regardless of their subsequent fields of specialisation, and

this still raises the issue as to what constitutes common ground for all the artistic disciplines. At the beginning of the century artists and designers were seeking common ground to unite what seemed an alarmingly fragmented situation in art and design, and this fragmentation has accelerated. In the narrower sphere of fine art, for example, we are dealing not simply with painters and sculptors, but with performance artists, video artists, computer artists, conceptual artists, and those who make earthworks and paint portraits. Likewise, with technical advance, particularly in the field of electronics, the design world draws together a much greater diversity of activity and expertise. This further fragmentation reinforces the necessity to reassess what constitutes the basics of art education and examine the common ground. To claim that all the arts are one seems a futile generalisation when one looks at the branch ends of the art and design world ranging from pop videos and painterly expressionism, to the design of British Railways timetables, wheel chairs and combine harvesters. If common ground is difficult to ascertain at the branch ends, then obviously one must go to the roots and reassess the essentialist arguments.

At the beginning of this study I quoted Clive Bell's statement on significant form, and to some degree the whole formalist position in the modern movement and its subsequent manifestation in art education, has hinged on the arguments set forth in that essay and in the writings of others. The argument being, that all the branches of art and design contain elements of shape, line, colour and so forth which combined in certain ways constitute significant form, and that significant form is the essence of all the visual arts. It is a reasonable argument if one accepts significant form as one of the essential characteristics of the

arts, and does not treat it, like many hard line formalists, as the definition of art. There is a consensus that the study of the formal elements of art is a sound basis in art education, although how these are studied will change according to the historical context. The study of formal elements has been an enduring aspect of art education for centuries and in many respects the basic design courses were reinterpreting tradition, and there are many remarkable similarities between certain aspects of the Newcastle course and art educational practices of the eighteenth and nineteenth-centuries. Geoffrey Dudley's requirement that students make a cube and cylinder, is not so dissimilar to the nineteenth-century practice of drawing solid geometrical bodies. Pasmore's explorations of geometry and proportion were carried out in the knowledge of Renaissance precedence. Many of the exercises in mark making and the exploration of line could have come straight out of Ruskin's 'The Elements of Drawing'. The following passage from Ruskin could easily have been accommodated in the line exercises at Newcastle and the notion of taking a line for a walk clearly anticipates Paul Klee.

'It does not in the least matter whether your pen outline be thin or thick, but it matters greatly that it should be equal, not heavier in the one place than another. The power to be obtained is that of drawing an even line slowly and in any direction; all dashing lines, or approximations to penmanship, are bad. The pen should, as it were, walk slowly over the ground, and you should be able at any moment to stop it and turn it in any other direction, like a well-managed horse.'¹⁴

Ruskin discouraged copying and stressed the need to study nature intimately and he would certainly have approved of D'Arcy Thompson. His emphasis on primary sources in nature would be at variance with much of the teaching at Newcastle and Ruskin's rejection of secondary sources was a main feature of his criticism. However, the use of secondary sources in the form of copying and the study of other art works were standard

practice in art education, and although no such practice was carried out at Newcastle specifically, the acceptance and manipulation of other forms of secondary material were. Perhaps the most enduring aspect of formal study in art education is colour which in certain principles, such as the study of complementary colours and discords, has changed little since Goethe and Chevreul.

There is a consistent case for the study of the formal elements in art, and while there are constants, like certain aspects of colour theory, each generation will reinterpret how these elements are studied and recast them according to the creative preoccupations of the time. However, formal analysis was only a part of basic design teaching and Richard Hamilton's course in particular sought to widen the teaching to consider such themes as perception and illusion, signs and symbols, transformations and projections, and various possibilities for image and picture making were floated which far exceeded the limits of formal analysis. The aesthetic base of the foundation courses at Newcastle, Leeds and London, was established not merely by the study of formal elements but the open ended and experimental manner in which the students were encouraged to work. It was not just sensibility which was being cultivated but an experimental attitude as well as a critical process of thought. This drive for experimentation was motivated by creative artists who regarded their teaching, like Pasmore, as a natural creative extension of their studio work. The spirit in which the teaching was carried out, in the last analysis, was more important than the content, particularly in those centres where a number of artists worked together, sharing their experiences among themselves and their students. It was in this exploratory, experimental studio environment, with the emphasis on

personal discovery, that a free fine art attitude is manifest, and it could be argued that this creative freedom, unconstrained and unaccountable, should be a necessary condition for any foundation course. More than formal analysis, experimental freedom and critical attitudes should be regarded as the enduring legacy of the basic courses and I would suggest that these qualities are best nurtured under the auspices of fine art.

Without wishing to suggest that freedom of experiment is the monopoly of the fine art world, and that these qualities are lacking within the design departments, there are, nevertheless, fundamental differences of purpose and intention which must be considered. So far the argument has been to find common ground between all the branches of art and design, but at a certain point along that sliding scale, fundamental differences occur and these must be considered. So far it has been convenient to adopt the William Morris and Walter Gropius attitude that all the arts at root are one. However, unlike the fine arts, the fields of architecture and design are accountable to the general public, and the designer works within a disciplined environment with clearly prescribed ends working within the constraints of functional demands, material limits, and social and economic realities. Adolf Loos argued that the artist had only himself to serve and that the work of art, unlike the work of the designer and architect, was answerable to nobody.¹⁵ For him works of art should be revolutionary, shake our comfortable complacency and look to the future, whereas architecture and design should be conservative and serve the public. He blamed the degeneration of art in his time on the confusion of the roles of fine and applied art, arguing that design was governed by fact and fine art should be concerned with values. The result of this confusion in his time had been the tangled hybrid of Art

Nouveau. Most significantly, Loos identified the role of the fine artist as innovative and critical and argued that unaccountability was a necessary condition for the fulfilment of that role. In his advocacy of the critical and innovative role of the artist, Loos identifies an essential fine art attitude which makes the untrammelled, unaccountable, irresponsible atmosphere of the artist's studio so conducive for experimentation and discovery.

For this reason many of the innovations and changes in the design field over the last hundred years have been anticipated and spearheaded by artists, who have taken the intellectual lead, rather than designers. Innovations in typography and graphic design, for example, would not have been possible were it not for the Futurist and Dada manifestos, the Suprematist paintings of Malevich or the collage and photomontage of Dadaism and Surrealism. As Patrick Heron has recently pointed out, the fine art courses are the:

'Laboratories from which the design courses derive so many of their images, ideas and visual devices.'¹⁶

The notion of the art studio as a laboratory was expressed by Kandinsky, and it is still an apt model for the modern foundation course. There is still a case for these 'laboratories' being manned by practising artists rather than designers, because they are best equipped to deal with those broad aesthetic factors in a free critical spirit, unconstrained by the technical, practical, problem specific requirements of the design world. One would hope that the experimental and critical momentum generated in the foundation year would carry through to further years and be extended and exploited by the design teachers at a more advanced stage in the educational process.

Relevance, accountability and marketable skills are the order of the day in the current educational climate. Design is fashionable because of the obvious commercial and economic benefits it brings, and there are increasing demands to extend design and technology teaching beyond the art schools and polytechnics, into the secondary, junior and infant schools. With limited time allocated on the timetable for creative subjects, there is a real danger that traditional, liberal, expressive art could be nudged aside to make way for design teaching. That free, spontaneous spirit which characterises the art of the primary school, and of which Pasmore and Read spoke so approvingly, could be eroded and replaced by methods which emphasised problem solving and skill based activities. If skill based and technical demands (which have a superficial relevance to commercial production), are made too early on in the developing artistic personality, there is a real danger that the imaginative, creative and expressive spirit could be stifled in infancy, and that would be bad for both art and design. Such moves towards technical and skill based modes of teaching could be retrogressive, and it was against such modes of teaching that the basic design movement stood out. In 1928 Kandisky argued that 'Specialised training without basic knowledge of general humanistic concepts should no longer be possible.'¹⁶

Later, William Johnstone, in his criticism of those students who received narrow craft training devoid of any real aesthetic dimension, argued the case for irrelevancy in art, and his point is worth repeating:

'There is a great case for irrelevancy, in the non-practical, as apposed to the necessary restrictions of craftsmanship. Any art teaching that is to have a lasting value must have as its aim the enriching of the student's sensibilities in order to withstand in later life the continuing deteriorating pressures of the world. No teaching system can be allowed to

degenerate by repetition until it is merely a means whereby a student can 'cram' for a job.'¹⁷

With the current demand for job skills, William Johnstone's words are highly relevant, and we need to question the superficial attraction of instigating skill based learning too early in the education process. One would not advocate basic design teaching and attitudes as a remedy for current art educational ills, but the issues of skill based, or experimental and process dominant modes of working, are in timely need of re-examination. For this reason, I would hope that this study of one aspect of basic design education, should be seen, not merely as an historical account of a movement in art education, but also as an investigation into attitudes and values in art education which are highly relevant to current issues and the training of artists, designers and teachers. As a history, it is also conceived with the hope of presenting basic design in a meaningful context whereby teachers, artists and organisers of education can review the issues with a more informed and critical judgement.

Notes and References

Preface

1. In 1963, King's College, Newcastle separated from Durham University to form the independent University of Newcastle-on-Tyne.
2. See Peter Fuller's, 'The Necessity of Art Education', Art Monthly No.47, 1981, and John A Walker 'The Basic Faults of the Basic Design Courses' Art Monthly No.46, 1981.
3. Letter to the author from Victor Pasmore, Malta, 10th September 1983.
4. Erik Forrest has been engaged in research into the Leeds contribution to Basic Design at the Ohio University, Athens, Ohio.

Origins of Basic Design Thought: Kandinsky, Klee and Itten

1. Walter Gropius, Programme of the Staatliche Bauhaus in Weimar, April 1919.
2. Clive Bell, Art, Chatto and Windus 1914. (The term Sta Sophia is a misnomer for Hagia Sophia, Ayasofia, St Sophia or Church of the Holy Wisdom.)
3. It is not within the scope of this dissertation to deal with the complex issue of the parallels between the visual arts and language. Nelson Goodman deals thoroughly with this matter in 'Language of Art' OUP, 1969 and it is a matter best dealt with by a philosopher. As previously stated, where artists make the link between art and language, they do so in loose, metaphorical terms rather than producing a rigorous argument seeking identifiable correspondences between the elements of form and the parts of speech or syntax and grammatical structures. Most artists are fully aware of the fundamental differences between a work of art and a piece of literature. Kandinsky, who drew parallels between painting and music acknowledges that the relationship is limited because music reveals itself over the passage of time and a work of art reveals its visual form (although not meaning) in an instant. Language and speech, on a day to day basis, are concerned with communication and clarity of expression is essential in this context. A work of visual art is not primarily concerned with communication and meaning in the same sense as language and some of the most powerful works of visual art conceal their meaning and remain fundamentally mysterious. Language itself operates on so many different levels from the legal document to the sonnet that generalisations and comparisons are meaningless. Often the most complex ideas and feelings can only be expressed in an oblique poetic form through metaphor and simile. The language of theology, for example, is often inadequate to express the magnitude of its content, and in the world of Islam, the highest expression of religious thought finds its form in poetry. When one suggests parallels between art and language one also needs to ask what kind of art in relationship to what kind of language? In one sense the more one probes the proposition that art is a form of language, the more preposterous that proposition becomes if one analyses it logically. However, the proposition, like the poetic simile, 'my love is like a red, red rose' should be accepted as such, and it is reasonable to accept it as a working metaphor.

4. Ludwig Wittgenstein, Tractatus Logico-Philosophicus, Routledge and Kegan Paul (1961), p.49.
5. D'Arcy Whentworth Thompson, On Growth and Form, CUP (1961), p.3.
6. Kandinsky, 'Art Education', the journal Bauhaus Dessau No.2/3 1928.
7. Kant, Critique of Judgement, translated by J H Bernard, Hafner Library, (1951), Analytic of the Subline, p.147.
8. Kandinsky, 'The Fundamental Elements of Form' and form Staatliches Bauhaus Weimar 1919 - 1923. Bauhaus Press, Weimar-Munich (1923), p.26.
9. Kandinsky, Concerning the Spiritual in Art, Dover (1977), p.19.
10. Walter Pater, The Renaissance, Fontana Library (1961), p.129.
11. op cit, No.9, p.20.
12. op cit, No.9, p.25.
13. op cit, No.9, p.24.
14. op cit, No.9, p.29.
15. op cit, No.9, p.37.
16. Kandinsky, Point and Line to Plane, Dover (1979), p.18.
17. op cit, No.16, p.21.
18. op cit, No.16, p.31.
19. op cit, No.16, p.33.
20. D'Arcy Thompson op cit, p.12.
21. Coomeraswarmy quoting St Thomas Aquinas.
22. op cit, No.16, p.38.
23. op cit, No.16, p.47
24. Kandinsky's assertions may not be in line with most mathematicians on this point, but most of Kandinsky's statements have to be accepted metaphorically.
25. op cit, No.16, p.58.
26. Mazdaznan was an offshoot of Persian Zoroastrianism. Western interest in Zoroastrianism followed the writings and translations of Martin Haug and the activities of Henry S Oscott and the Theosophical Society. Of the Mazdaznan sect, Mary Boyce states:

 'They were yet another eclectic, Occulist American group, whose founder, one Otoman Hanish claimed visionary enlightenment. He came across the English

translation of the Avesta (in the Sacred Books of the East), and blended elements from what he apprehended of Zoroastrianism from it with others from Hinduism and Christianity, used fire as a cult-symbol and added breathing exercises, song and dance.'

Mary Boyce, Zoroastrians Their Religious Beliefs and Practices, Routledge and Kegan Paul (1979), p.217.

27. J Itten, Design and Form, Thames and Hudson (1975), p.12.
28. op cit, No.16, p.92
29. op cit, No.16, p.98.
30. op cit, No.16, p.98.
31. Kandinsky, Klee, Itten and Mondrian were preoccupied with non-material and metaphysical issues which influenced their art and their teaching. Sometimes the metaphysical borders on the mystical in their search for divine unity. Where spiritual consciousness transcends the particulars of any single religion, and the individual experiences a sense of unity with some higher spiritual order, then we can justifiably use the terms mystic or mysticism, rather than the more generic term metaphysical. The Theosophical movement which influenced these artists, represented a search for spiritual truths which transcend individual faiths and this search for unity, corresponded with the search for a new artistic sense of order. The dualism which is manifest in Mazdaznan, and in Kandinsky's constant reference to inner and external reality, corresponds in artistic terms to the issues of abstraction versus naturalism. The dual path is expressed in other terms by Al Ghazali, the Muslim philosopher and mystic, who describes the two paths to salvation as the outward, exoteric observance of religious law (the Sharia) and the inward, esoteric path of divine love, meditation, asceticism and all the other facets of Sufi practice.
32. op cit, No.16, p.107.
33. op cit, No.16, p.112, Kandinsky, here is speaking in metaphorical terms in describing a language without words.
34. op cit, No.16, p.116.
35. Frank Whitford, Bauhaus, Thames and Hudson (1984), p.97.
36. Kandinsky acknowledges A S Pushkin as the source of this idea, A S Pushkin, Works, Petersburg, Verlag Anneoff, 1855, Vol.V, p.16.
37. op cit, No.16, p.143.
38. J L Ettlinger, At Rest, Charlton Lecture, OUP (1961), p.20. The Charlton lectures, on one single work of art, were an annual event at Durham University, and it is almost certain that both Victor Pasmore and Richard Hamilton would have attended this lecture.
39. op cit, No.38, p.15 (quoting Wolfgang Kohler, 'The Mentality of Apes' (1951), p.196).

40. Victor Pasmore, 'What is Abstract Art?' The Sunday Times Magazine, February 1961.
41. op cit, No.38, p.18 (quoting Max Wertheimer, 'Über Gestalttheorie' (1925), p.13).
42. op cit, No.38, p.16 (quoting 'Kandinsky, Essays', p.104).
43. Paul Overy, Kandinsky : The Language of the Eye, Elek (1969), p.142.
44. op cit, No.38 (quoting Humbert de Superville, 'Essai sur les signes inconditionnels dans l'art' (1827), p.73).
45. Quoted in Werner Haftmann Painting in the Twentieth Century, Lund Humphries (1965), p.22.
46. ibid
47. John Russell, Seurat, Thames and Hudson (1965), p.13.
48. op cit, No.38, p.20.
49. op cit, No.4, p.151.
50. ibid
51. Paul Klee, 'Ways of Nature Study' Staatliches Bauhaus Weimar 1919, Bauhaus Press Weimar-Munich.
52. ibid
53. Paul Klee, 'Creative Credo', Tribune der Kunst und Zeit, Berlin (1920). Published in The Thinking Eye, Lund Humphries (1961), p.18.
54. Paul Klee, The Thinking Eye, Lund Humphries (1961), p.60.
55. ibid
56. op cit, No.5, p.12.
57. op cit, No.54, p.76.
58. op cit, No.54, p.79.
59. op cit, No.54, p.19.
60. Reyner Banham, 'Klee's Pedagogical Sketchbook' Encounter (April 1953), p.56.
61. Paul Klee, The Pedagogical Sketchbook, Faber and Faber (1953), p.26.
62. Victor Pasmore, (quoted by Reyner Banham, 'Paul Klee's Pedagogical Sketchbook', Encounter (1953), p.57.
63. op cit, No.54, p.355.
64. op cit, No.54, p.357.

65. op cit, No.54, p.39.
66. op cit, No.54, p.387.
67. Lawrence Alloway, op cit, No.60, p.56.
68. op cit, No.27, p.7.
69. op cit, No.27, p.34.
70. op cit, No.27, p.63.
71. Victor Pasmore. Letter to the author, Malta, 2nd October 1983.

The Influence of the Bauhaus on Basic Design

1. Fiona McCarthy, All Things Bright and Beautiful, Allen and Unwin (1972), p.110.
2. op cit, No.1, p.111.
3. ibid
4. N Gabo, 'The Constructive Idea in Art', Circle, Faber and Faber, pp.2 and 8.
5. William Johnstone, Points in Time, Barrie and Jenkins (1980), p.221.
6. ibid
7. One needs to question on what basis these criticisms of Bauhaus teaching were established as there must have been little knowledge in this country of Bauhaus pedagogy.
8. op cit, No.5, p.220.
9. Victor Pasmore. Interviewed by the author, Arts Club, London, 13th January 1984.
10. Victor Pasmore. Letter to the author, Malta, 2nd October 1983.
11. Richard Hamilton. Interviewed by the author, Northend Farm, Northend. 15th January 1982.
12. op cit, No.5, p.254.
13. op cit, No.5, p.246.
14. op cit, No.11.
15. Harry Thubron. Interviewed by Peter Sinclare, 1974. Coventry Lanchester Polytechnic Archive.
16. op cit, No.10.
17. John Wood. Interview with Peter Sinclare, 14th August 1974. Coventry Lanchester Polytechnic Archive.
18. Norbert Lynton. Interviewed by Peter Sinclare, 20th September 1974. Coventry Lanchester Polytechnic.
19. ibid
20. Reyner Banham, 'Klee's Pedagogical Sketchbook', Encounter (April 1954), p.53.
21. op cit, No.20, p.55.
22. ibid
23. op cit, No.20, p.56.

24. op cit, No.20, p.57.
25. op cit, No.20, p.58.
26. ibid
27. op cit, No.10.
28. Richard Morphet, William Turnbull, Tate Gallery (1973), p.24.
29. Richard Hamilton. Interviewed by Peter Sinclare, 1974. Coventry Lanchester Polytechnic Archive.
30. Richard Hamilton, 'Ulm' Design, June 1959.
31. Richard Hamilton. Interviewed by Victor Willing, 'What Kind of Art Education?' Studio International. September 1966.
32. Tomas Maldonado, Ulm, 1963.
33. Tomas Maldonado, 'Design Education' The Education of Vision. Edited by Gyorgy Kepes. Studio Vista (1965).
34. Roger Coleman, The Developing Process, Newcastle (1959).

Victor Pasmore: The Natural World and Abstraction

1. Clive Bell, Victor Pasmore, Penguin Modern Painters (1947).
2. John Ruskin, Modern Painters Vol.3, p.624.
3. J A M Whistler, The Ten O'Clock Lecture, London, 20th February 1885.
4. Letter sent to 'The World' on 22nd May 1878, and reprinted in The Gentle Art of Making Enemies, New York, 1890, under the new title 'The Red Flag' p.126.
5. Walter Pater, The Renaissance, Fontana (1961), p.129.
6. Charles Baudelaire, 'The Life and Work of Eugène Delacroix' included in Les Fleures du Mal et Oeuvres Choiesies. Edited by Wallace Fowlie, Bantam Books, New York (1964), p.215.
7. op cit, No.6, p.201.
8. William Gaunt, The Aesthetic Adventure, Pelican (1957), p.131. Wilde described the Atlantic Ocean as 'disappointing' and the Niagra Falls as the second disappointment newlyweds encountered on their honeymoon.
9. John Wood. Interviewed by Peter Sinclare, 1974. Coventry Lanchester Polytechnic.
10. Victor Pasmore. Interviewed by the author. Arts Club, London, 13th January 1984.
11. Cézanne. Cézanne Letters. Edited by J Rewald. Bruno Casirer Oxford (1976), p.302.
12. op cit, No.11, p.303.
13. op cit, No.11, p.301.
14. op cit, No.11, p.261.
15. As quoted by Victor Pasmore in 'What is abstract Art?' Sunday Tiems Magazine, 5th February 1961. Pasmore attributes this saying to Cézanne although there is no trace of this statement coming from any of his letters. Pasmore quotes this in the context of a statement on art for art's sake and calls for a re-examination of the credentials of art for art's sake, arguing that the movement had the 'objective aim of creating beauty which was real and actual rather than imitative and illusory'. Pasmore then quotes Cézanne whose statement, he considers best expresses the aims of art for art's sake. Cézanne's statement supports the notion of art's autonomy and independence from nature and this is the point which Pasmore argues, saying that art works are concrete objects which parallel and correspond to nature. Much of what Pasmore proposes is questionable in suggesting that beauty is more apparant or real when it is disenagaged from illusion or imitation, and does not, for instance, take account of the fact that we experience beauty in nature independently of works of art.

16. ibid
17. Letter from Morris Kestelman to the author, 28th October 1984.
18. Terry Frost. Interviewed by the author at Newlyn, 6th April 1983. Terry Frost does not give precise dates, but Pasmore began producing his collages in 1949, the year in which he moved from Camberwell to the Central School.
19. 1970. Awarded Leverhulme Fellowship and was elected Honorary Research Fellow in the Department of Mathematics, University College, London, 1979. Elected member of the London Mathematical Society and made visiting research associate in the Department of Mathematics, University College, London. He has presented numerous mathematical papers at conferences in Europe and America. See Anthony Hill, Arts Council (1983), pp.84-88.
20. The exhibition 'Abstract British Art' and Abstract Art' held at the AIA Gallery and Gimpel Fils Gallery in 1951 represented a breakthrough in abstract art in post-war Britain. Basil Taylor, in reviewing the exhibitions in 'The Listener' commented that it was extraordinary that abstract art, which was forty years old, should have had such little impact on Britain. He quotes the excursions of the Vorticists and the significant involvement of Ben Nicholson as the main contributors to pre-war abstraction. Basil Taylor's observations were pertinent, but there were signs in the fifties that some of those artists who were involved in pre-war abstraction, like John Piper, were returning to figuration, and even Ben Nicholson was beginning to relax his rigorous abstraction, influenced by Mondrian and returning to semi-figuration. Ben Nicholson was a key figure who had arrived at abstraction through early contact with Braque, and later through his links with Mondrian and Gabo. Gabo had stayed on in Britain at St Ives until 1946 and became an important influence on Peter Lanyon who first met Gabo in 1939. Lanyon received lessons from Nicholson as well as being encouraged by Gabo. It was therefore natural for Pasmore and the younger generation of abstract artists to congregate around Nicholson whose experience and council was much sought after.
21. Victor Pasmore, Tate Gallery (1965), Catalogue item 89.
22. Victor Pasmore, 'The Artist Speaks', Art News and Review (February 1951).
23. Lawrence Alloway, Nine Abstract Artists, Tiranti (1954).
24. Charles Biederman, Art as Evolution of Visual Knowledge, Red Wing (1948).
25. Biederman makes many assertions without being too precise as to which period of the artist's work he is referring to. From the general sense of his argument, and the reference to the Rouen Cathedral series, one would assume that Biederman had the late, rather than the early Monet in mind.
26. op cit, No.24, p.269.
27. op cit, No.11, p.242.

28. As quoted by Herbert Read, Art Now, Faber and Faber (1933).
29. op cit No.11, p.301.
30. Biederman's conclusion is questionable. Cézanne's statement is ambiguous but he does suggest that the objects conform to a central viewpoint and that they are all put into perspective thus conforming to a single system. The evidence of Cézanne's paintings does show multiple viewpoint, particularly the late Mont. St Victoire paintings, but as a general rule his paintings do conform to a broad centralised perspective. It is usually a matter of perspective irregularities within a general conformist scheme, and not the total abandonment of traditional perspective implied by Biederman.
31. op cit, No.24, p.304.
32. Clement Greenberg, Art and Culture, Beacon (1965), p.172.
33. op cit, No.24, p.342.
34. It is curious, in this respect, that Biederman includes Malevich, whose earlier Suprematist works are far from two dimensional.
35. op cit, No.24, p.360.
36. Mondrian. Quoted by Michel Seuphor. Piet Mondrian : Life and Work, p.20.
37. Mondrian, Plastic Art and Pure Plastic Art, 1937.
38. op cit, No.24, p.435.
39. Similar views were expressed by Tatlin and other leaders of the Russian avant-garde in 1918, see: 'Meeting of iskusstvo' in Iskusstvo Kommuni, No.1, 7th December 1918.
40. Alastair Grieve, 'Charles Biederman and the English Constructionists', Burlington Magazine, (September 1982).
41. op cit, No.40, p.545.
42. op cit, No.40, p.545.
43. ibid
44. op cit, No.40, p.544.
45. op cit, No.40, pp.546-547
46. op cit, No.40, p.547.
47. Liz Jobey, 'The Man Who Took Art Back to Basics', Sunday Times (February 1985).
48. op cit, No.23, p.35.
49. op cit, No.23, p.36.

50. Victor Pasmore, 'What is Abstract Art?' Sunday Times (February 1961).
51. Richard Hamilton, Collected Words, Thames and Hudson (1982), p.26.
52. William Varley. Interviewed by the author. Newcastle (19th March 1982).
53. op cit, No.24, p.342.

Richard Hamilton : The Natural and Man-Made World

1. In 1949 Hamilton produced a series of drawings and etchings after re-reading 'Ulysses' while he was in the army.
2. Marcel Duchamp, 'The Trouble with Art this Century', published in The Essential Writings of Marcel Duchamp edited by M Sanouillet and E Peterson. Thames and Hudson (1975), p.125.
3. Pierre Cabanne, Dialogues with Marcel Duchamp, Thames and Hudson (1971), p.43.
4. op cit, No.2, pp.125-126. The translation of the word 'Bete' for 'stupid' may be a misleading emphasis. 'Bete' is often understood as animal passions and instincts. It is also highly questionable to assert that Courbet was the first to establish a 'retinal' emphasis on art.
5. Richard Hamilton, Collected Words, Thames and Hudson (1982), p.10.
6. Christopher Mullen, Nigel Henderson, Norfolk Country Council (1982), p.25.
7. Richard Morphet, Richard Hamilton, Tate Gallery (1970), p.20.
8. David Thistlewood, Herbert Read, Routledge and Kegan Paul (1984), p.134.
9. D'Arcy Thompson, On Growth and Form, CUP (1961), p.3.
10. op cit, No.9, p.4. The term 'final cause' may be considered a contradiction in terms.
11. op cit, No.9, p.5.
12. ibid
13. op cit, No.9, p.11.
14. The notion that process rather than product is more important, is one of the most controversial aspects of basic design teaching. As a reaction against technique based modes of teaching, the new emphasis was towards a rapid turn over of ideas and a purely experimental attitude which excluded notions of finish and finality. As in most aesthetic matters the real issue is one of balance and judgement. To argue that end products don't matter, particularly in the field of design, would be absurd. What the basic design teachers wanted to get across was the fact that at the preliminary foundation course level, experimentation and fluid attitudes were a priority and precious attitudes towards end products could be very inhibiting. To put the matter in perspective, Richard Hamilton said to his first year students that he would expect them to be painting, drawing and making sculpture for a lifetime, and therefore one year given over to pure experimentation without due regard to the production of works of art, was a necessary preliminary stage in order to set the students thinking.

15. Richard Hamilton, 'About art teaching, basically', Motif 8, Winter 1961.
16. op cit, No.9, p.326.
17. Herbert Read, preface to Aspects of Form, edited by Lancelot Law Whyte. Lund Humphries (1951).
18. See David Thistlewood. Herbert Read, Routledge and Kegan Paul (1984), p.18.
19. op cit, No.17.
20. J J Gibson, Perception of the Visual World, Riverside Press 1950.
21. Colin Blakemore, Mechanics of the Mind, CUP, 1977, p.67.
22. op cit, No.5, p.16.
23. op cit, No.20, p.120.
24. Rita Donagh. Interviewed by the author, Northend Farm, Northend. October 1982.
25. William Turnbull. Interviewed by the author, Camden. January 1984.
26. Richard Hamilton. Interviewed by the author, Northend Farm, Northend. 15th January 1982.
27. Richard Hamilton. Interviewed by Peter Sinclair, 1974. Coventry Lanchester Polytechnic Archive.
28. op cit, No.24.
29. Rayner Banham, Man Machine and Motion, Newcastle 1955, p.15.
30. Richard Hamilton, 'An Exposition of She', Architectural Design, February 1960.
31. Lawrence Gowing, introduction to op cit, No.29.
32. op cit, No.30.
33. op cit, No.7.
34. op cit, No.26.

The Development and Philosophy of the Foundation Course

1. Terry Frost. Interviewed by the author, Newlyn, 6th April 1983.
2. Richard Hamilton. Interviewed by the author, Northend Farm, Northend, 15th January 1982.
3. Erik Forrest, 'Harry Thubron at Leeds and the Views on the Value of his Ideas for Education Today', Journal of Art and Design Education, Vol.4, No.2, 1985, p.147.
4. Harry Thubron. Interviewed by Peter Sinclare, 1974. Coventry Lanchester Polytechnic Archive.
5. William Varley. Interviewed by the author, Newcastle University, 19th March 1982.
6. Letter from Victor Pasmore to author, Malta, 2nd October 1983.
7. op cit, No.3, p.162.
8. Victor Pasmore. Interviewed by the author, Arts Club, London, 13th January 1984.
9. op cit, No.6.
10. Lawrence Gowing. Letter to the author, Slade School of Fine Art, 11th March 1983.
11. op cit, No.3.
12. ibid
13. Liz Jobey, 'The Man Who Took Art Back to Basics', Sunday Times, January 1985, and in conversation with him at the University of Warwick, July 1985.
14. op cit, No.8.
15. op cit, No.6.
16. Victor Pasmore, The Developing Process, Newcastle (1959), p.3.
17. David Thistlewood, Herbert Read, Routledge and Kegan Paul (1984), p.129.
18. Victor Pasmore, op cit, No.16.
19. Harry Thubron, op cit, No.16, p.4.
20. Victor Pasmore, op cit, No.16.
21. John Wood. Interviewed by Peter Sinclare, 1974. Coventry Lanchester Polytechnic Archive.
22. op cit, No.17. The publishers information on the author David Thistlewood stated that he attended Leeds College of Art "The one

place in Britain where Herbert Read's ideas concerning creative education were being most consistently practised."

23. op cit, No.21.
24. op cit, No.6.
25. These points were made by Richard Hamilton in an interview with me at Northend, 5th September 1984, and in conversation with William Turnbull January 1985.
26. op cit, No.4. In a recent letter to 'The Observer' (12th October 1986), T Dan Smith mentioned that he, along with Charles Bosanquet (former Vice-Chancellor of Newcastle University) formed the first Regional Arts Council in 1960.
27. 'Basic Form' - an exhibition to be held in the recital room of the Royal Festival Hall on 26th April 1957 - in connection with the SEA conference.
28. See Peter Fuller, 'The Necessity of Art Education', Art Monthly, No.47, 1981.
29. op cit, No.6.
30. op cit, No.5 and No.35.
31. op cit, No.8.
32. Richard Hamilton. Interviewed by the author, Northend Farm, 5th September 1984.
33. Matt Rugg. Interviewed by the author, Brixton, 15th September 1982.
34. op cit, No.2.
35. Rita Donagh. Interviewed by the author, Northend Farm, 1st October 1982.
36. op cit, No.2.
37. Richard Hamilton, 'Diagrammar', The Developing Process, Newcastle, 1959, p.19.
38. ibid
39. ibid
40. ibid
41. D'Arcy Thompson, On Growth and Form, CUP 1961, p.12.
42. op cit, No.37.
43. Marcel Duchamp. Quoted by Calvin Tomkins, The Bride and the Bachelors, Weidenfeld and Nicholson (1965), p.24.
44. op cit, No.43, p.29.

45. Marcel Duchamp, 'The Green Box', from The Essential Writings of Marcel Duchamp, edited by Sanouillet and Peterson, Thames and Hudson (1975).
46. Peter Medawar, 'D'Arcy Thompson and Growth and Form' reprinted in Pluto's Republic, OUP (1984), p.240.
47. op cit, No.45, p.50.
48. op cit, No.37.
49. ibid
50. op cit, No.4.
51. op cit, No.1.
52. Richard Hamilton. Interviewed by Peter Sinclare, 1974. Coventry Lanchester Polytechnic Archive.
53. op cit, No.52.
54. ibid
55. Richard Hamilton, 'About art teaching, basically', Motif 8, Winter 1961.
56. Richard Hamilton, 'What kind of art education?' Studio International. Interview with Victor Willing, September 1966.
57. op cit, No.55.
58. ibid
59. ibid

Course Content

1. Richard Hamilton, 'About art teaching, basically', Motif 8, Winter 1961, p.18.
2. ibid
3. ibid
4. David Thistlewood, The Continuing Process, ICA (1981), p.15.
5. Matt Rugg. Interviewed by the author, Brixton, 15th September 1982.
6. Victor Pasmore. Letter to the author, Malta, 2nd October 1983.
7. Richard Hamilton. Interviewed by the author, Northend Farm, 15th January 1982.
8. Colin Blakemore, Mechanics of the Mind, CUP, p.87.
9. op cit, No.1, p.19.
10. Kandinsky, Point and Line to Plane, Dover (1979), p.31.
11. William Feaver, Ian Stephenson, Arts Council (1977), p.7.
12. op cit, No.11, p.14.
13. Marcel Duchamp, 'The Green Box'. Reprinted in The Essential Writings of Marcel Duchamp, edited by M Sanouillet and E Peterson, Thames and Hudson (1975), p.65.
14. Victor Pasmore, 'What is Abstract Art?', Sunday Times Magazine (February 1961).
15. Geoffrey Dudley, The Developing Process, Newcastle, (1959), p.37.
16. Richard Hamilton, Collected Words, Thames and Hudson (1982), p.68.
17. Peter Medawar, 'D'Arcy Thompson and "Growth and Form"'. Reprinted in Pluto's Republic, OUP, p.238.
18. op cit, No.7.
19. D'Arcy Thompson, On Growth and Form, CUP (1961), p.271.
20. op cit, No.19, p.273.
21. op cit, No.7.
22. Pierre Cabanne, Dialogues with Marcel Duchamp, Thames and Hudson (1971), p.38.
23. op cit, No.13, p.45.
24. op cit, No.22, p.39.
25. op cit, No.13, p.72.

26. op cit, No.7.
27. Richard Hamilton. Interviewed by the author, Northend Farm, 5th September 1984.
28. Richard Hamilton, 'Diagrammar', 'The Developing Process', Newcastle (1959), p.16.
29. op cit, No.27.
30. ibid
31. ibid
32. Anton Ehrenzweig, The Hidden Order of Art, Paladin (1967), p.166.
33. op cit, No.7.
34. Richard Hamilton. Interviewed by Peter Sinclare, 1974. Coventry Lanchester Polytechnic Archive.
35. Richard Hamilton, 'An Exposition of She', Architectural Design (October 1962).
36. op cit, No.7.
37. Terry Frost, The Developing Process, Newcastle (1959), p.47.
38. Terry Frost. Interviewed by the author, Newlyn, 6th April 1983.
39. ibid
40. Christopher Mullen, Nigel Henderson, Norfolk County Council, p.29.
41. op cit, No.7.
42. op cit, No.35.
43. Marco Livingstone, Stephen Buckley, Oxford and Liverpool (1985), p.18.
44. ibid
45. ibid, p.12.

Conclusion

1. In his opening chapter of 'Education Through Art', Herbert Read states as his thesis the Platonic concept 'that art should be the basis of education'. Read does not state the source in Plato and there is some question as to whether Plato's understanding of art squares with current attitudes. Read's general thesis is plausibly stated throughout his book, but whether it would have Plato's backing is questionable.
2. Richard Hamilton, 'What kind of Art education?' Studio International. Interview with Victor Willing (September 1966).
3. Victor Pasmore, The Developing Process, Newcastle (1959), p.3.
4. Erik Forrest, 'Harry Thubron at Leeds, and Views on the Value of his Ideas for Art Education Today', Journal of Art and Design Education, Vol.4, No.2 (1985).
5. P C Vitz and A Glimcher, Modern Art and Modern Science, Preager (1984), Chapter 1.
6. Friedrich Nietzsche, 'The Will to Power'. Quoted by Peter Medawer, 'Mainly about Induction', 'Pluto's Republic', CUP (1984), p.89.
7. Course description for the 1956 Scarborough Summer School.
8. Rita Donagh. Interviewed by the author, Northend Farm, 1982.
9. Marco Livingstone, Stephen Buckley, Oxford/Liverpool (1985), p.38.
10. Richard Hamilton. Interviewed by the author, Northend Farm, 1984.
11. The First Coldstream Report (1960), 'Purpose of the Pre-Diploma Course', Art education documents and policies 1768-1975, Clive Ashwin (SRHE 1975), p.96.
12. Victor Pasmore, 'The Man Who Took Art Back to its Basics'. Interview with Liz Jobey, Sunday Times (February 1985).
13. Richard Hamilton. Interviewed by Peter Sinclare, 1974. Coventry Lanchester Polytechnic Archive.
14. John Ruskin, 'The Elements of Drawing and Perspective'. J Dent (1907), p.9.
15. Patrick Heron's address on receiving and honorary D Litt at the University of Kent (1986). Quoted in Art Monthly, No.99 (September 1986).
16. Kandinsky, 'Art Education', the journal Bauhaus, Dessau No.2/3 (1928).
17. William Johnstone, 'Points in Time', Barrie and Jenkins (1980), p.256.

Bibliography

- Ashwin, C., Art Education documents and policies 1768 - 1975, SRHE (1975).
- Alley, R., Victor Pasmore, Tate Gallery (1965).
- Alloway, L., Nine Abstract Artists, Tiranti (1954).
- Arnheim, R., Art and Visual Perception, Faber (1956).
- Banham, R., Klee's 'Pedagogical Sketchbook', Encounter (April 1954).
- Banham, R., Man, Machine and Motion, Newcastle (1955).
- Bell, C., Victor Pasmore, Penguin Modern Painters (1947).
- Benton, T., Form and Function, Granada (1980).
- Biederman, C., Art as the Evolution of Visual Knowledge, Red Wing (1948).
- Bowness, A., Victor Pasmore, Thames and Hudson (1980).
- Brown, D., Terry Frost, Arts Council (1976).
- Cabanne, P., Dialogues with Marcel Duchamp, Thames and Hudson (1967).
- Cross, T., Painting the Warmth of the Sun : St Ives Artists 1939-75, Lutterworth (1984).
- Duchamp, M., The Bride Stripped Bare by Her Bachelors, Even, Edition Hansjorg Mayer, London (1976).
- Ettlinger, J., At Rest, Charlton Lecture Newcastle, OUP (1961).
- Farr, D., English Art 1870-1940, OUP (1984).
- Feaver, W., Ian Stephenson, Arts Council (1971).
- Field, R., Richard Hamilton: Image and Process, Tate Gallery (1983).
- Forrest, E., 'Harry Thubron at Leeds, and Views on the Value of his ideas for Art Education Today', J.A.D.E, Vol.4, No.2, 1985.
- Geelhaar, C., Paul Klee and the Bauhaus, Adams and Dart (1973).
- Ghyka, M., The Geometry of Art and Life, Dover (1970).
- Gibson, J., Perception of the Visual World, Houghton Mifflin (1950).
- Giedeon, S., Mechanisation Takes Command, OUP (1955).
- Golding, G., Marcel Duchamp : The Bride Stripped Bare by her Bachelors, Even, Allen Lane (1973).
- Goodman, N., The Language of Art, London University Press (1969).

- Gowing, L., Lawrence Gowing, Arts Council (1983).
- Grieve, A., Anthony Hill, Arts Council (1983).
- Grieve, A., 'Charles Biederman and the English Constructionists: Biederman and Pasmore', Burlington Magazine (September 1982).
- Grieve, A., Victor Pasmore, Arts Council (1980).
- Gropius and Bayer, Bauhaus, New York Museum of Modern Art, 1939.
- Haftmann, W., The Mind and Work of Paul Klee, Faber (1957).
- Hamilton, R., Prints - A Complete Catalogue of Graphic Works, Edition Hansjorg Mayer (1984).
- Hamilton, R., 'About art teaching, basically', Motif 8 (Winter 1961).
- Hamilton, R., 'An Exposition of She', Architectural Design (February 1960).
- Hamilton, R., Collected Words, Thames and Hudson (1982).
- Hamilton, R., 'Diagrammar', The Developing Process, Newcastle (1959).
- Hamilton, R., 'First Year Studies at Newcastle', TES (1960).
- Hamilton, R., Marcel Duchamp, Tate Gallery (1966).
- Hamilton, R., The Bride Stripped Bare by Her Bachelors Even Again, Newcastle (1966).
- Hamilton, R., 'Ulm', Design (June 1959).
- Hamilton, R., 'U-L-M Spells H.f.G', The Architects Journal (July 1958).
- Hamilton, R., 'What kind of art education?', Studio International (September 1966).
- d'Harnoncourt, A., Marcel Duchamp, Thames and Hudson (1973).
- Itten, J., Design and Form, Thames and Hudson (1963).
- Itten, J., The Elements of Colour, Van Norstrand Reinhold Co. (1970).
- Johnstone, W., Points in Time, Barrie and Jenkins (1980).
- Kandinsky, W., Concerning the Spiritual in Art, Dover (1979).
- Kandinsky, W., Point and Line to Plane, Dover (1979).
- Klee, P., Pedagogical Sketchbook, Faber (1953).
- Klee, P., The Thinking Eye, Lund Humphries (1961).
- Koffka, K., Principles of Gestalt Psychology, New York (1935).
- Livingstone, M., Stephen Buckley : Many Angles, Oxford/Liverpool (1985).

- MacCarthy, F., All Things Bright and Beautiful, Allen and Unwin (1972).
- Marck, J., Charles Biederman, Arts Council (1969).
- Maldonado, T., 'Design Education', The Education of Vision, edited by Gyorgy Kepes, Studio Vista (1950).
- Martin, J., Editor of Circle, Faber (1937).
- Martin, K., Kenneth Martin, The Tate (1975).
- Martin, M., Mary Martin, The Tate (1984).
- McDonald, S., History and Philosophy of Art Education, University of London (1970).
- Medawar, P., Pluto's Republic, OUP (1984).
- Morphet, R., Richard Hamilton, Tate Gallery (1970).
- Morphet, R., William Turnbull, Tate Gallery (1973).
- Mullen, C., Nigel Henderson, Norfolk County Council, 1982.
- Naylor, G., The Bauhaus, Studio Vista (1968).
- Naylor, G., The Bauhaus Reassessed, Herbert Press (1985).
- Overy, P., Kandinsky : The Language of the Eve, Elek (1969).
- Overy, P., William Johnstone, Arts Council (1981).
- Pasmore, V., 'The Artist Speaks', Art News and Review, (III, February 1951).
- Pasmore, V., The Developing Process, Newcastle (1959).
- Pasmore, V., Nine Abstract Artists, Edited by Lawrence Alloway, Tiranti (1954).
- Pasmore, V., 'What is Abstract Art?', The Sunday Times Magazine (February 1961).
- Rewald, J., Cézanne's Letters, Bruno Casira Oxford (1976).
- Roethel, H., Kandinsky, Phaidon (1979).
- Sanouillet and Peterson, The Essential Writings of Marcel Duchamp, Thames and Hudson (1975).
- Sausmarez, M., Basic Design, Studio Vista (1964).
- Senter, T., Moholy Nagy, Arts Council (1980).
- Shuttleworth, M., Harry Thubron, Arts Council (1976).
- Sparke, P., An Introduction to Design and Culture in the Twentieth Century, Allen and Unwin, 1986.

Tate Gallery, St Ives 1939-64 (1985).

Thistlewood, D., A Continuing Process, ICA (1981).

Thistlewood, D., Herbert Read, Routledge and Kegan Paul (1984).

Thompson, D., On Growth and Form, CUP (1961).

Tomkins, C., The Bride and the Bachelors, Weidenfeld and Nicholson (1965).

Verdi, R., Klee and Nature, Zwemmer (1984).

Vitz, P. and Glimcher, A., Modern Art and Science, Preager (1984).

Whistler, J., The Gentle Art of Making Enemies, New York (1890).

Whitford, F., Bauhaus, Thames and Hudson (1984).

Whitford, F., Eduardo Paolozzi, Tate Gallery (1971).

Whyte, L., Aspects of Form, Lund Humphries (1951).

Wingler, H., The Bauhaus, Mit Press (1969).

Taped Interviews

Marcel Duchamp an interview with George Heard Hamilton and Richard Hamilton, (1959), Audio Arts Magazine, Vol.2, No.2.

Peter Sinclair. Interviewed Richard Hamilton, 1974. Coventry Lanchester Polytechnic Archive.

Peter Sinclair. Interviewed Norbert Lynton, 1974. Coventry Lanchester Polytechnic Archive.

Peter Sinclair. Interviewed John Wood, 1974. Coventry Lanchester Polytechnic Archive.

Peter Sinclair. Interviews (2) with Harry Thubron, 1974. Coventry Lanchester Polytechnic Archive.

Peter Sinclair. Interviewed John Kinnaird, 1974. Coventry Lanchester Polytechnic Archive.

Richard Yeomans. Interviewed Richard Hamilton, 15th January 1982 and 5th September 1984 at Northend Farm, Northend, Oxon.

Richard Yeomans. Interviewed William Varley, University of Newcastle-on-Tyne, 19th March 1982.

Richard Yeomans. Interviewed Matt Rugg, Brixton, London, 15th September 1982.

Richard Yeomans. Interviewed Rita Donagh, 1st October 1982, Northend Farm, Northend, Oxon.

Richard Yeomans. Interviewed Geoffrey Dudley, January 1983, Chelsea School of Art.

Richard Yeomans. Interviewed Terry Frost, 6th April 1983, Newlyn, Cornwall.

Interviews

Richard Yeomans. Interviewed Ian Stephenson, Battersea, December 1981.

Richard Yeomans. Interviewed Victor Pasmore, January 13th 1984 at the Arts Club, London and July 12th 1985 at the University of Warwick.

Richard Yeomans. Interviewed William Turnbull, November 1985, Camden, London.

Correspondence

Letter from Victor Pasmore, Malta, 10th September 1983. Appendix H.

Letter from Victor Pasmore, Malta, 2nd October 1983. Appendix I.

Letter from Morris Kestelman, London, 28th October 1984.

NORTH RIDING SUMMER SCHOOL

SCARBOROUGH 1956

11 day COURSE in DRAWING, PAINTING, SCULPTURE and CONSTRUCTION

The nature of this course has differed from that of previous years in so far as it has not concentrated on providing opportunities for the student to produce complete works. Instead, the purpose has been to investigate the possibility of providing a course of basic training in keeping with the demand of modern visual art.

As modern art is "conceptional" rather than "perceptual", a form of laxity is necessary, whereby the student is given the means of formulating his own objective basis. Knowledge of how to reproduce nature's effects and appearance (as in naturalistic painting) gives way to knowledge of the causes by which these effects are produced. This course, therefore, provides opportunities for the study of form and colour at all levels by analysing their fundamental structure and aesthetic functions.

The course has been divided into a series of exercises beginning in two dimensions and finishing with three.

- 1 A series of exercises in area division and relationships (pencil)
- 2 Free spatial relationships of given rectilinear areas (paper collage)
- 3 Colour analysis and association (oil paint)
- 4 Development of primary forms (other than rectilinear) and their complementaries (charcoal)
- 5 Analytical drawing from natural forms (pencil)
- 6 Development of cubic relationships in mass (carving)
- 7 Building in mass and development of free forms (clay modelling)
- 8 Spatial division and light relationships with rectilinear planes (construction)
- 9 Spatial division and relationships with straight lines (dowl rods)
- 10 Spatial relationships in curvelinear form (wire)

A PEDAGOGICAL APPROACH TO BASIC FORM IN THE VISUAL ARTS

The need for a reassessment and renewal of the process of teaching in the visual arts, first foreseen in the nineteenth century, has now become a reality. Several factors underly the cause.

1. The disintegration of the old classical and naturalist tradition.
2. The social demand for an end to the separation of the fine and applied arts.
3. The introduction of art activity in schools as a creative counterpart to the traditional systems of education.

The development of a new process of art teaching on purely emotional and intuitive levels has already been established in infant schools with successful results. However the need for extension on the intellectual and rational plane of the adolescent and adult student is now necessary. At the same time any integration of the fine and applied arts requires a form of training capable of much wider extension than is possible in the specialised empiricism of traditional teaching. The study of fundamental principles of form structure and perceptual processes therefore, must now replace that of specialised optical representation. The development of a course of studies is required which will form the centre of an integrated process of teaching from which all specialised and individual activities can freely develop.

There are, of course, innumerable ways and means of conducting a basic training in form development. The main essential is that the course does in fact deal with primary elements of form and colour which enables a student to acquire a sustaining grammar. The problems can be designed so that they allow every student to make a contribution to the maximum of his intellectual and emotional ability. From a constructive and analytical basis a student can develop a creative awareness and a questing attitude to life as a whole and his work in particular.

TOM HUDSON *Leeds College of Art*

VICTOR PASMORE *Dept. of Fine Art, Durham University*

WENDY PASMORE *Sunderland College of Art*

H. J. THUBRON *Leeds College of Art*

basic form

an exhibition to be held
in the recital room of the
Royal Festival Hall on
26th April 1957

in connection with the
S.E.A. Conference

BEST COPY

AVAILABLE

Poor text in the original
thesis.

North Riding Education Committee

B A S I C F O R M

An eleven day course in the study of basic elements of form, colour, structure and perceptive processes.

The need for objectivity and method in the teaching of modern art is becoming increasingly evident. The development of a new approach to art teaching on purely emotional and imaginative levels has already been established in infant schools with successful results. But the need for extension on the intellectual, scientific and technical plane of the adolescent and adult student is now necessary. The immediate requirement is for a recapitulation of fundamental principles of form structure and perceptual processes essential to the visual arts. The development of a methodical course of studies is required which will form the centre of an integrated process of teaching from which all specialised and individual activities can freely develop.

There are, of course, innumerable ways and means of conducting a basic training development. The main essential is that the course does in fact deal with primary elements of form and colour which enables the student to acquire a sustaining grammar. The problems can be so designed so that they allow every student to make a contribution to the maximum of his intellectual ability and emotional requirements. From a constructive and analytical basis a student can develop a creative awareness and a questing attitude to life as a whole and his work in particular.

This course, therefore, provides opportunities for the study of form and colour at all levels by analysing their fundamental comparative structure in relation to perceptual processes and natural anatomy.

The course has been divided into a developing series of studies and exercises:-

- | | | |
|---|-------------------------------|---|
| 1 | POINT and LINE | studies in straight and curvilinear structure and rhythm. |
| 2 | PLANE, AREA, SPACE and VOLUME | studies in straight and curvilinear structure and rhythm. |
| 3 | TONE and COLOUR | analytical studies. |
| 4 | DRAWING from NATURE | comparative anatomy and structural analysis. |
| 5 | TECHNIQUE | lecture on synthetic materials and machine techniques. |

These studies and exercises have been analysed and worked out in all their dimensional forms through the mediums of drawing, painting, carving, modelling and construction.

BASIC FORM

An experimental Basic Foundation course has been introduced in two secondary schools in the Newcastle area: at Kenton Comprehensive School under the direction of Mr. Peter Welton and at Longbenton County Secondary School under the direction of Mr. Colin Ross.

The content of these basic courses has been determined by the following factors:

The number of children in a yearly intake who are likely to become artists is so small that to gear a curriculum to this minority is not a satisfactory method of introducing art to the school as a whole. Generally speaking, children entering secondary schools have already lost confidence in their capacity to produce pictures which require specialised artistic skill. Some form of practice is required therefore of a more general character.

By presenting art practice in the form of basic principles, it is possible to place all children on an equal footing free of any prejudice about their ability.

How the Basic Course Works.

1. Each exercise has a positive objective which demands the solving of a fundamental problem of form, structure, pattern, colour and proportion.
2. No conscious attempt is made to produce a design as a purely decorative art work in itself. That a finished piece of work should possess beauty or charm is dependent on the sensibility of the child to the problem in hand.
3. Each exercise is concerned with one or more of the fundamental properties inherent to the visual appreciation of form. These are:
 - a. Lines.....rhythm, contours.
 - b. Planes.....surfaces, patterns.
 - c. Solids.....mass and volume.
 - d. Colour.....hue, value, pattern.
 - e. Texture.....materials.
 - f. Space.....areas, structure and proportion, intervals between parts.

The course is a departure from the work of the Junior school where free unsophisticated self-expression in pictorial representation for all pupils continues to have a natural and valuable place.

The Professor of Fine Art is indebted to the Headmasters of these two schools for their co-operation in making it possible to show this work.

DEPARTMENT OF FINE ART
PROFESSOR LAWRENCE GOWING, C.B.E., M.A.
TELEPHONE NEWCASTLE 25735

KING'S COLLEGE

NEWCASTLE UPON TYNE, 1

BASIC FORM

Second Year

FIRST WEEK

TUESDAY	Morning	Point and Line (with matches and abstract)
	Afternoon	Line (with string and abstract)
WEDNESDAY	Morning	Shape relationship (abstract)
	Afternoon	" " "
THURSDAY	Morning	Colour.
	Afternoon	"
FRIDAY	Morning	Colour.
	Afternoon	"

FOUNDATION COURSE

	<u>1A</u>	<u>1B</u>
WEEK 1	Surface	Line
2	Line	Surface
3	Shape Making	Positive/Negative
4	Positive/Negative	Shape Making
5	Shape Making (Sculpture)	Area Division
6	Area Division	Shape Making (Sculpture)
7	Shape Relationship (Sculpture)	Shape Relationship (Painting)
8	Shape Relationship (Sculpture)	Shape Relationship (Painting)
9	Shape Relationship (Painting)	Shape Relationship (Sculpture)
10	Shape Relationship (Painting)	Shape Relationship (Sculpture)
11	Line (Wire)	Line (Wire)
12	Colour	Space Frame
13	Colour	Space Frame
14	Space Frame	Colour
15	Space Frame	Colour
16	Flow	Relief (Sculpture)
17	Relief (Sculpture)	Flow
18	Image (Selective)	Image (Sculpture)
19	Image (Inventive)	Image (Sculpture)
20	Image (Sculpture)	Image (Selective)
21	Image (Sculpture)	Image (Inventive)
22	Analytical Drawing	Analytical Sculpture
23	Analytical Sculpture	Analytical Drawing
24	Analytical Drawing	Analytical Sculpture
25	Analytical Sculpture	Analytical Drawing
26	Colour	Colour
27	Design Test Pieces	Sculpture Test Pieces
28	Sculpture Test Pieces	Design Test Pieces

TIMETABLE : SESSION 1965-66

FOUNDATION COURSE

	<u>1A</u>	<u>1B</u>
TERM 1		
Week 1	Line	Line

2	Line (Sculpture)	Line

3	Point/Group	Point/Groups

4	Shape Making	Shape Making

5	Shape Making (Sculpture)	Shape Relationship

6	Shape Relationship (Sculpture)	Positive/Negative

7	Shape Relationship	Shape Making (Sculpture)

8	Positive/Negative	Shape Relationship (Sculpture)

9	Space filling	Space filling

10	Transformation and Projection	Sign/Situation

11	Sign/Situation	Transformation and Projection

TERM 2		
Week 1	Surface Development (Sculpture)	Perception/Illusion

2	Perception/Illusion	Surface Development (Sculpture)

3	Colour	Colour

4	Colour	Colour

5	Area Division	Area Division

6	Space frame	Space frame

7	Image (Selective)	Image (Sculpture)

8	Image (Inventive)	Image (Sculpture)

9	Image (Sculpture)	Image (Selective)

10	Image (Sculpture)	Image (Inventive)

TERM 3		
Week 1	Analytical Drawing	Analytical Drawing

2	Analytical Drawing	Analytical Drawing

3	Analytical Sculpture	Analytical Sculpture

4	Analytical Sculpture	Analytical Sculpture

5	Analytical Painting	Analytical Painting

6	Analytical Painting	Analytical Painting

Victor Pasmore

Dar Gamri
Ta' Kaxxina
Gudja,
Malta.
Tel: 821914

Dear Richard Yeomans,

10. 9. 83

In reply to your enquiry, forwarded to me here by the Tate Gallery, it is necessary to understand that there was no single or unified idea, system or programme for the Foundation Course developed by Richard Hamilton and myself at Newcastle and by Harry Thubron and Tom Hudson at Leeds. In fact the whole affair was an entirely empirical and experimental procedure which somehow managed to muddle together and combine in collective exhibitions of students' work. It was these exhibitions which gave the appearance of unity - rather like when a mass of assorted junk cars are dumped in a heap they form the unity of a pyramid.

In fact the course was really an extension of that established previously at the Central School of Art in London by its Principal, William Johnstone, on Bauhaus lines, which both Hamilton and I taught there before going to Newcastle along with Robert Adams, Alan Davie and William Turnbull. The Newcastle course was an attempt to give the Central version a more dynamic extension. Indeed, its title, "The Developing Process" was devised by me precisely to symbolise this extension from the old static concept of Basic Design and Basic Form.

In my view the Newcastle/Leeds "Tower of Babel" was its great strength and vitality. I would hate to see it systematised and idealised by some art scholar or philosopher, with a penchant for totalitarian concepts. That is why I personally have refused all requests to write or talk about it since.

As Head of the Department of Painting at Newcastle I was in the unique position of being able to establish this experiment as a major factor in the School curriculum. The reasoning behind my insistence on this was that in the Schools of Painting and Sculpture in London and throughout the country there was no connection between the antiquated nineteenth century teaching and the revolutionary developments of modern art. In my mind the course was nothing more than an attempt to set the ball rolling to bring art school teaching up to date.

Yours sincerely
Victor Pasmore

Appendix I

Mr. Richard Yeomans
Department of Arts Education,
University of Warwick.

2. 10. 83

DAR GAMRI
GUDJA,
MALTA.

Dear Richard Yeomans,

In view of your exceptional interest in the abstract foundation course established at King's College, Newcastle, by Richard Hamilton and myself I feel obliged to answer your second enquiry in more detail. Your paragraphs in this letter ask a number of questions:-

I think that Harry Thubron was right when he denied any knowledge of the Bauhaus teaching; indeed, none of us had except of course Johnstone and Halliwell and also, I think, Hamilton. Being influenced by Klee's painting is one thing, but by his teaching is quite another. In any case Klee's pedagogical writings are almost unintelligible! Nevertheless the publicity which arose from the Newcastle initiative stimulated a fresh interest in the Bauhaus and I remember attending and contributing to at least two discussions about it at the I.C.A. in London in the early 1950s (see "Klee's Pedagogical Sketchbook" in 'Encounter', April 1954). So Norbert Lynton's remark to you surprises me.

The foundation courses established by William Johnstone both at Camberwell and the Central School were essentially Bauhaus because he adopted its policy of employing fine artists (painters and sculptors) to teach it to industrial and other craft designers. Consequently both at Camberwell and the Central School the departments of painting and sculpture were excluded from this innovation. But all the artists appointed by Johnstone at the Central for this purpose belonged to the post-war movement of abstract art which, by the early 1950s, had become a strong influence in the London art world. Indeed Hamilton himself had been a purely abstract painter while at the Central.

Nevertheless in spite of their Bauhaus application to the design schools the basic courses at the Central were completely independent. We were all part-timers with no opportunity to meet and discuss a unified method. Each artist, therefore, was free to develop his own course in the light of his own experience as a painter or sculptor. And this was precisely my position also at the time.

To begin with, therefore, I knew nothing about the Bauhaus teaching. Being in the painting department at Camberwell I had no teaching connections with either Halliwell or Straker in the design school. Moreover, Johnstone was not interested in extending the design course to the painting school, so I never discussed the Bauhaus with him although I knew him extremely well. Halliwell's course was called "Colour, Tone and Texture" and this was the nickname we painters gave him!

I derived an abstract foundation course not from the Bauhaus or from Johnstone and Halliwell, but from experiments carried out in my own studio. When I decided to start experimenting with purely abstract painting in 1947/48 I needed a new objective foundation to replace the visual object in naturalistic representation. This new object had to be not only concrete like natural objects, but also abstract and independent (man-made). As a start, therefore, I adopted formal units derived from geometric figures. Consequently when Johnstone invited me to follow him and Halliwell at the Central and help establish an abstract basic course in the design departments there I accepted because it provided an opportunity to extend my own experiments in conjunction with student and other abstract artists like myself, as I had become by that time. In other words the basic course which I developed initially was related specifically to my own requirements. It was not until I was given the responsibility of directing the whole department of painting at Newcastle in 1954 that I began to think in terms of art education generally.

Since the Central School basic courses were confined only to the design departments the great innovation at Newcastle was its extension to the schools of painting and sculpture. As a fully committed abstract painter and also director of the painting school I was in the position of being able not only to introduce my own course to the fine art students but also to form a special department and invite Hamilton to join me with the course which he had installed as lecturer in the school of textile design before I arrived in Newcastle. The subsequent importance of Thubron was that he had been able to do the same thing at Leeds after he too had been appointed Head of the painting school there. But Thubron was essentially a student of the Newcastle initiative in the sense that he had been inspired by our basic form exhibitions while Head of the painting school at the nearby Sunderland School of Art where he subsequently installed a basic course of his own with Tom Hudson who was a lecturer there before both went to Leeds.

In view of its extension beyond the design schools into those of painting and sculpture the combined Newcastle/Leeds initiative constituted an important advance. But the point to understand is that so long as an abstract foundation course was confined to industrial and allied design nobody questioned its validity; but directly it infiltrated into the sacred realm of fine art it caused an uproar!

This, of course, was understandable because in terms of painting and sculpture an abstract course of study can relate only to their abstract development. In the 1950s visual representation was still the order of the day in art school teaching while the small abstract movement, which was revived in London shortly after the war between 1946 and 1950, was still regarded as subversive in respect to art teaching. But after the big American initiative in abstract painting, which reached England in the 50s, young artists became increasingly attracted to it so that an abstract foundation course, applied to the fine arts, became a viable alternative in the schools.

But now that the euphoria for purely abstract painting and sculpture has subsided and to some extent has developed into a reaction against it a distinction perhaps should be made between an abstract course for industrial and other designers from one established for painters and sculptors. Whereas the former can be obligatory for all, the latter should be voluntary. An abstract course for a student committed to visual representation could be very disturbing.

My reference to the "old basic form" or "basic design" was perhaps misleading. What I regard as old is the title because "basic form" or "basic design" imply something fixed, static and ideal. But what I taught was that any form, shape or process can serve as a starting point for abstract painting or sculpture whether it be a geometric square or a blot of ink, a rigid construction or a fluid pigment. In my course, therefore, what was predetermined was not the end but the beginning. For instance, if the given exercise involved constructing a square it would not be an ideal square but the student's own personal square. Hence my title "The Developmental Process".

I left Newcastle in 1961 and Hamilton took over my basic department; but what he did with it I do not know because I never returned. Thus I could not have addressed the students in 1963/64 as you imply. Under my direction the abstract course was not a full-time commitment for the first year (I would never have allowed that); it was a one day a week engagement for students of every year, whether beginners or advanced, parallel to their main studies in painting, sculpture or textile design. Perhaps afterwards Hamilton had to follow the instructions of the Ministry of Education which had accepted the idea of an abstract course in its schools provided that it was confined to the first year.

I knew Herbert Read very well and had countless discussions with him on art; but we looked for his support rather than influence which he gave very generously. Child art, the theme of his book "Education Through Art" had no influence at all on my basic course at Newcastle. Child art is consciously representational so it had no place in my curriculum. But I cannot speak for Hamilton whose pop-art interests may have led him in that direction. But Child art may have been a strong factor at Leeds because of the influence there of Alan Davie who Thubron coopted into his team.

Davie, Reid, Hudson and myself all served together for several years on the selection committee of the annual exhibition of children's art organised by the Sunday Mirror. This exhibition included children of all ages from toddlers to adolescents. But while we did invite an adolescent contribution in terms of abstract form on a few occasions we made no such requests for the real child art.

Although I adopted no particular examples of Paul Klee's pedagogical course I was influenced by his concept of "process" in his pedagogical writings. And yes, the geometric and mathematical books of Hambidge, Power and Ghyka also influenced my early abstract work, but only for the reason that the division and proportioning of the picture-plane is one of the first stages in establishing the abstract independence of painting. I was not interested in their platonic or idealistic implications.

This leads me to state what I mean by purely abstract painting and sculpture. For me the most unique and exciting development of modern art has been its increasing movement towards the independence, not of the artist but of the painting itself, first in terms of visual representation (fauvism and cubism) and subsequently in completely abstract form. For me abstract painting is first "concrete" and only afterwards ideological - hence my analogy with music. Indeed that is why for a period between the early 1950s and mid 60s I moved from flat abstract painting to relief. It was my desire to investigate the validity of this approach which prompted me to indulge in a critical correspondence with the American constructivist, Charles Biederman.

Looking back in retrospect at both the Bauhaus and the Newcastle foundation course I have become aware of both negative and positive qualities. On the negative side the Bauhaus suffered from idealistic implications which undermined its relation to industrial design which can be said to require basic function rather than basic aesthetics. On the positive side, however, an abstract aesthetic is particularly relevant in the modern comprehensive schools of art and technology where the fine arts are absorbed in the general atmosphere of industrial and craft design. In these schools an abstract foundation course in aesthetic terms can serve to unite at some stage in their curriculum all the diverse departments of the visual arts. Moreover, since it would be the function of the fine art department to teach this course painting and sculpture would acquire a positive function in relation to the school as a whole.

But as for an abstract foundation course in a school of fine art only, like Kings College, Newcastle, or the Slade in London the position becomes ambiguous because of the diverse forms of painting and sculpture which so far characterise the art of the 20th century. In these schools, therefore, such a course would serve the students best if it were voluntary.

Unfortunately I cannot indulge in further detailed correspondence about all this as I am completely ignorant of the art school situation now having left it way back in 1961. But I would be happy to meet you and discuss the matter on one occasion when I am in London. I expect to be back again in December and I will let you know.

Meanwhile yours sincerely

Kiki Pearson

P.S. The Newcastle/Leeds alliance came about through my acquaintance with Thubron when I was invited by the Yorkshire Education Committee (John Wood) to direct a Summer School at Scarborough on the lines of my basic course at Newcastle. Both Thubron and Hudson were my assistants. We used this school for two consecutive years as an experimental approach to the problem.